

FLIGHT

The
AIRCRAFT ENGINEER
AND AIRSHIPS

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DIARY OF CURRENT AND FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in this list:—

1931	
Oct. 15.	"Protection of Metals in Aircraft Construction," Lecture by H. Sutton before R.Ae.S.
Oct. 17.	Football. R.A.F. v. Oxford University at High Wycombe.
Oct. 21.	Rugby. Combined Services v. The Rest, at Woolwich.
Oct. 27.	"By Air to Baghdad," Lecture by Mrs. Pender Chalmers at the Electrical Association for Women, 15, Savoy St., Strand, W.C.2 (3 p.m.).
Oct. 28.	Football. R.A.F. v. Hampshire, at Bournemouth.
Oct. 29.	"Accidents in Civil Aviation," Lecture by Capt. A. G. Lamplugh before R.Ae.S.
Oct. 31.	Rugby. Combined Services v. Bristol, at Bristol.
Nov. 5.	"Safety in Spinning," Lecture by H. B. Irving before R.Ae.S.
Nov. 18.	"Flying Boats in Empire Defence," Lecture by Wing-Com. R. M. Bayley, before R.U.S.I.
Nov. 19.	"Aircraft Vibration," Lecture by H. Constant before R.Ae.S.
Dec. 3.	"Wheel Brakes and Undercarriages," Lecture by S. Scott Hall before R.Ae.S.
Dec. 10.	"Air Flow—Demonstrations on the Screen by Means of Smoke," Lecture by W. S. Farren before R.Ae.S.
Dec. 17.	"Control Beyond the Stall," Lecture by Dr. G. V. Lachmann before R.Ae.S.
1932	
Jan. 14.	"Interference," Lecture by E. Ower before R.Ae.S.
Jan. 28.	"Effect of Height on Range," Lecture by A. E. Woodward-Nutt and Flt.-Lt. A. F. C. Scroggs before R.Ae.S.
Feb. 24.	"A Flight to Abyssinia," Lecture by Sqdn.-Ldr. J. L. Vachell, before R.U.S.I.
Mar. 10.	"Results with the New Wind Tunnel at N.P.L.," Lecture by E. F. Relf before R.Ae.S.
Mar. 16.	"Development of Naval Air Work," Lecture by Commodore N. F. Laurence, before R.U.S.I.
Mar. 23.	"High Speed Flying," Lecture by Sqdn.-Ldr. A. H. Orlebar, before R.U.S.I.
Apr. 13.	"The North West Frontier of India," Lecture by Maj.-Gen. S. F. Muspratt, before R.U.S.I.

EDITORIAL COMMENT



THE simple ceremony at Beauvais on the anniversary of the loss of R 101 naturally turns our thoughts once more to the question of airships. The decision to avoid further expenditure on R 100 has been accepted as part of the campaign of national economy to which we are obliged to submit.

It may prove a very extravagant form of economy, somewhat resembling the case of the starving farmer who eats his seed potatoes. But starvation cannot admit of forethought; the needs of the moment are paramount.

Naval Airships

In the current issue of the *Journal of the Royal Air Force College* there appears an article on airships by Major C. C. Turner which ends with the phrase "The world needs airships very badly, and I rather think that that being the case it will, in the end, have them." In this case the writer was referring to commercial airships. R 100 and R 101 were both designed as commercial airships, and therefore our minds are rather full of that side of airship development. These two ships, being experimental, did not carry a commercial load, and therefore did not prove the case for commercial airships any more than they disproved it. We have no knowledge of the balance-sheet of the "Graf Zeppelin," but are quite prepared to believe that she pays her way by dint of charging fancy fares, which is not a commercial proposition. Some years ago the "Bodensee," which was a very small rigid, came within a reasonable distance of paying her way.

With all this discussion about the prospects of commercial airships, the public is apt to lose sight of the question of naval airships. The man in the street is apt to think of Leefe Robinson and his tracer bullets, and to reply, "Oh, airships have been proved too vulnerable for use in war. They were a failure." They certainly are vulnerable when they come within range of an aeroplane, and they certainly were a failure when wrongly employed. It might be said that the British Navy was also a failure when wrongly employed. We do not profess to be naval experts, but we believe that it is generally admitted that it was a mistake for a fleet to attempt to force

the Dardanelles without military co-operation, and the attempt was certainly a failure. So were airships a failure when the Germans used them for military instead of for naval purposes, and sent them to bomb Great Britain. Though they did some damage on occasions, they were ultimately beaten, and it would be folly to neglect the lesson and to use airships again in war in circumstances which exposed them to aeroplane attack. That may be taken as a principle of future operations in the air.

The acceptance of this principle does not, however, rule out the use of airships in other circumstances. The Zeppelins were of very great use to the High Seas fleet, but the North Sea does not give enough scope for the use of an airship, and on the North Sea it could seldom be sure of remaining out of range of hostile aeroplanes. We recall the classic example of L 53. The "Camel" could climb to the height at which that airship operated, so she never came within a "Camel's" range of the British coast. She overlooked the possibility of an aircraft carrier. In this case the carrier was only a specially prepared barge towed by a destroyer, but it conveyed the "Camel" within range of the Zeppelin, and Lieut. Culley took off from the barge and shot the airship down on August 11, 1918. Aircraft carriers are more highly developed now, and from the experience of the great war we may say that no fleet can entirely forbid the waters of the North Sea to a hostile carrier.

There remain the great trade routes of the British Empire across the oceans, and particularly the Pacific and the Indian oceans. We use cruisers to patrol them. When isolated raiders such as the "Emden" got loose in those vast expanses of water it took a great many cruisers to run them to earth. In the case of the "Emden" it has been authoritatively stated that at one time 29 British cruisers were engaged in looking for her. The cost to the country in maintenance of the cruisers was very high, and they took a long time before they found the raider. In the meantime she had sunk some millions of pounds worth of British shipping. It was a case in which airships would have been invaluable to the British Navy. We have heard a reply given to this argument to the effect that an aircraft carrier would have been just as efficient as airships would have been. Possibly so, but an aircraft carrier costs a great deal more than quite a number of airships built by production methods.

In the Indian and the Pacific oceans airships could work in complete safety so far as the aeroplane menace was concerned. They would naturally keep out of the range of hostile shore aerodromes, and it may be taken for granted that hostile carriers would not be at large on those oceans. If they were, it would mean that the British Navy had failed badly in one of its main functions. We should no longer be ruling the seas, and the safety of the British trade routes would no longer be a matter of very much concern. The whole basis of this case must be that

the Navy can forbid the great oceans to hostile fleets and capital ships.

To discuss wars and defence is now regarded in some quarters as a crime against the League of Nations spirit. Expenditure on armaments is considered one of the main causes of the ills which beset the world in 1931. Few men, however, are so fanatical as to suggest that no defence forces are needed, and among reasonable men merit should be accorded to a suggestion which would enable defence to be carried on with less expenditure of money. If savings can be effected by substituting airship patrols for cruiser patrols (not wholly, of course, but in part), the suggestion should deserve careful consideration by patriot and pacifist alike. Completely convincing figures are naturally not available, but the following figures are given by Sir Dennistoun Burney in his book *The World, the Air and the Future*. Despite his experience in building R100, Sir Dennistoun may be no more able than other people to say what would be the cost of naval airships when standardised and built by the dozen, but, as a naval officer, he doubtless is quite at home when quoting the cost of cruisers. He puts the matter as follows:—The cost of patrolling 1,000 square miles of sea with airships would, in running costs, be 25s.; while the running costs of patrolling it with light cruisers would be £77 10s. If capital costs are considered, Sir Dennistoun has worked out that 55 million pounds would have to be spent on light cruisers to give a power of reconnaissance which would be obtained by using airships for a sum of 3½ millions; while the saving in annual upkeep by using airships is put down at 11 million pounds.

Sir Dennistoun also puts the case in another way, comparing the radius of search of six airships with that of six light cruisers. In southern oceans he allows the cruiser a range of vision of 15 miles from the masthead, and the airship a range of vision of 50 miles at a height of 2,000 feet. The cruising speed of the surface ship he puts at 20 knots, and calls that generous; that of the airship at 50 knots. The six cruisers spread on a line would search 180 miles by 170 miles in 12 daylight hours, while the six airships would search 600 by 700 miles, or about 370,000 more square miles per day than the cruiser squadron. Moreover, he assumes the complement of a cruiser to be 700 officers and men, as against 40 on an airship, which gives totals of over 4,000 men and 240 men respectively. The capital cost of a cruiser is put down as about two million pounds.

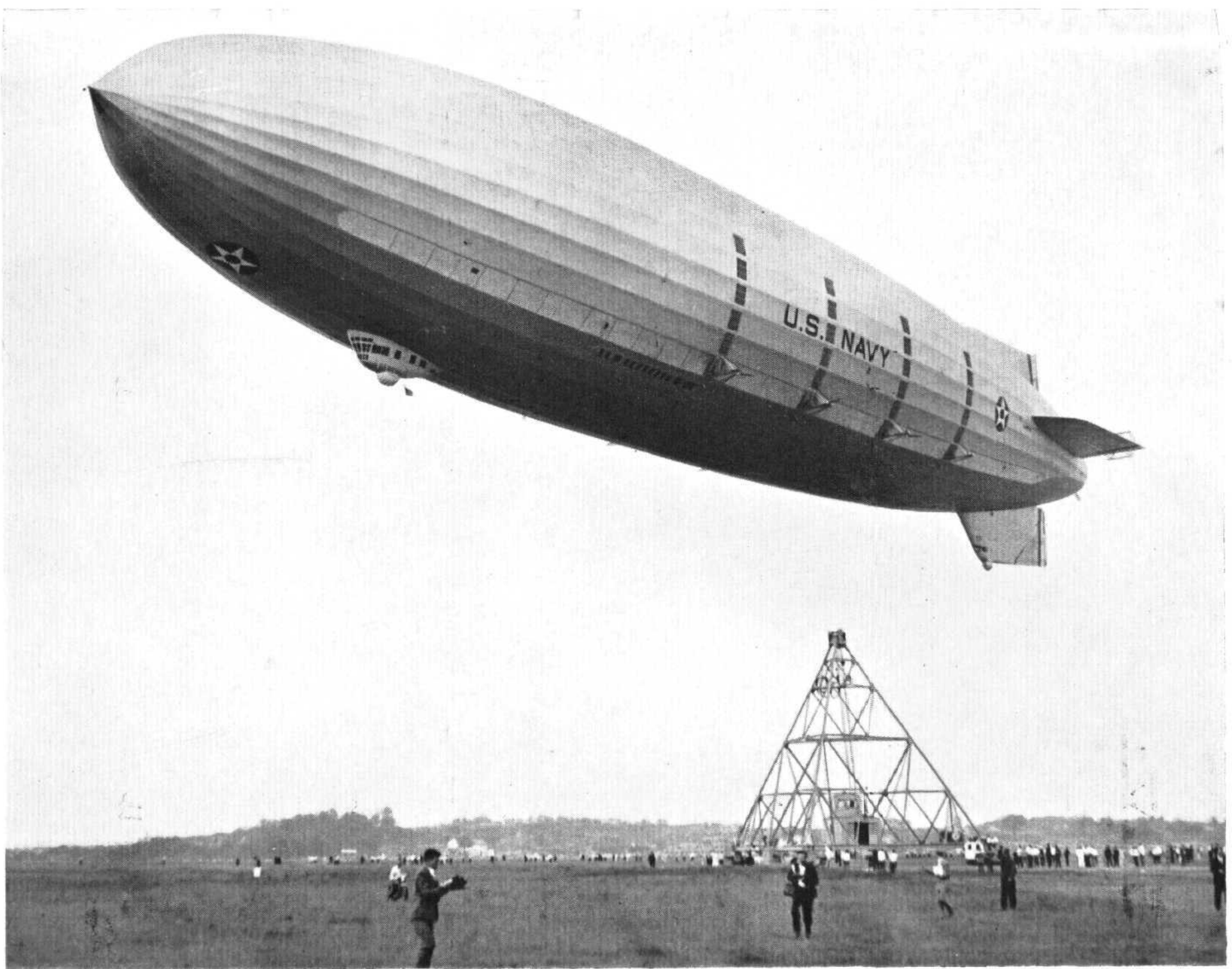
We take no responsibility for these figures ourselves, but even if a very large miscalculation could be found, there is a huge margin of economy on the side of the airship. Sir Dennistoun seems to have allowed a margin of error of 19,400 square miles in the last calculation. About the difference in the cost of manning the two there can be no doubt at all; nor, granted average weather, is the difference in speed and in range of vision a matter of dispute. The question, therefore, arises, can the Navy in these days of economy afford to carry on without airships?

THE HAMPSHIRE CLUB'S MYSTERY.—It is now generally known that Mr. J. C. Jewell, a member of the Hampshire Aeroplane Club, has been missing since approximately 6 p.m. on Sunday, September 20, when he was seen leaving Bristol, presumably *en route* to Hamble in a "Gipsy Moth" G-AAJR. It has, however, been established that an aircraft was seen flying high from Barn-

staple down the coast of Cornwall over Bude to St. Ives, and was last seen over Penzance the same evening shortly after 8 p.m.

It would greatly assist the club and Mr. Jewell's relations if the pilot of this machine, assuming it was not Mr. Jewell, was to come forward, thereby establishing the fact that it was not Mr. Jewell.

THE "AKRON"
TAKES THE
AIR: On Sept. 23
the U.S. Navy
dirigible "Akron"
—the largest air-
ship in the world—
made its maiden
flight of about four
hours' duration.
She is shown here
immediately after
being launched at
Akron, Ohio.

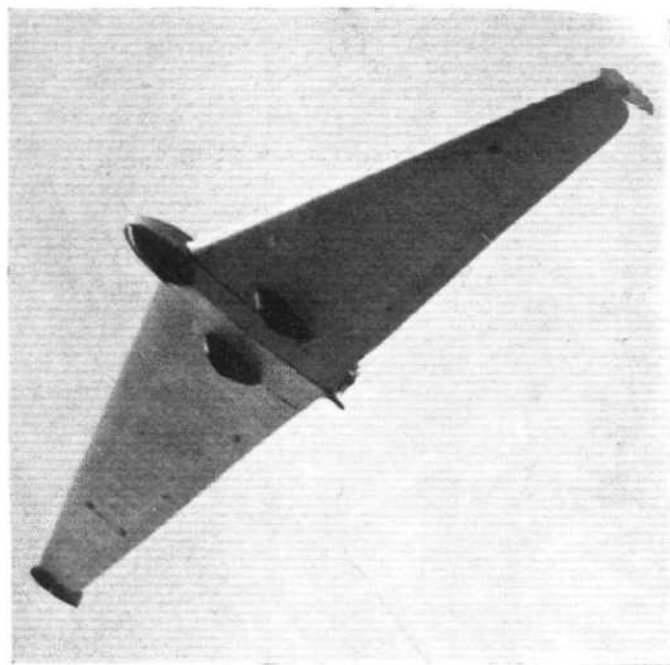


The New German "Tailless"

By EDWIN P. A. HEINZE

ON the instigation of Dr. Hermann Köhl, the successful German ocean flier, Herr Lippisch, the chief engineer of the Rhoen-Rossitten Association, and his staff have developed a tailless plane, which has so far shown excellent flying qualities. It was recently demonstrated at Berlin-Tempelhof airport before a party of prominent people interested in aviation and representatives of the Press. Dr. Hermann Köhl, as he said in a speech, sees in the development of this type of aeroplane the present most promising step towards achieving more economical machines capable of profitable long-distance transport work across oceans and continents. He is personally interested in the early perfection of such planes, with which, as we know from other sources, he plans inaugurating a regular transport service between Europe and America.

From the performance of the first trial machine it would appear that the new type promises well for the future. It was first built as a sailplane, which was successfully flown at the Rhön, and the experience there gained was such as to encourage altering the design into the present motor-driven plane. In the sailplane the body was situated below the wing. It has now been built into the latter, with its top protruding above it, while the lower wing surface is flush. The wing is of the cantilever type, with a pronounced lateral dihedral angle. It has been constructed entirely of wood, with plywood leading edge and fabric covering. For this size of plane the wing has an unusually deep section, and its plan contours are those of an equilateral triangle, with a very obtuse apex angle forming the front, while the long base line constitutes the trailing edge. The fuselage projects out in front, and contains two seats arranged one behind the other, the front one being equipped with the usual type of controls,



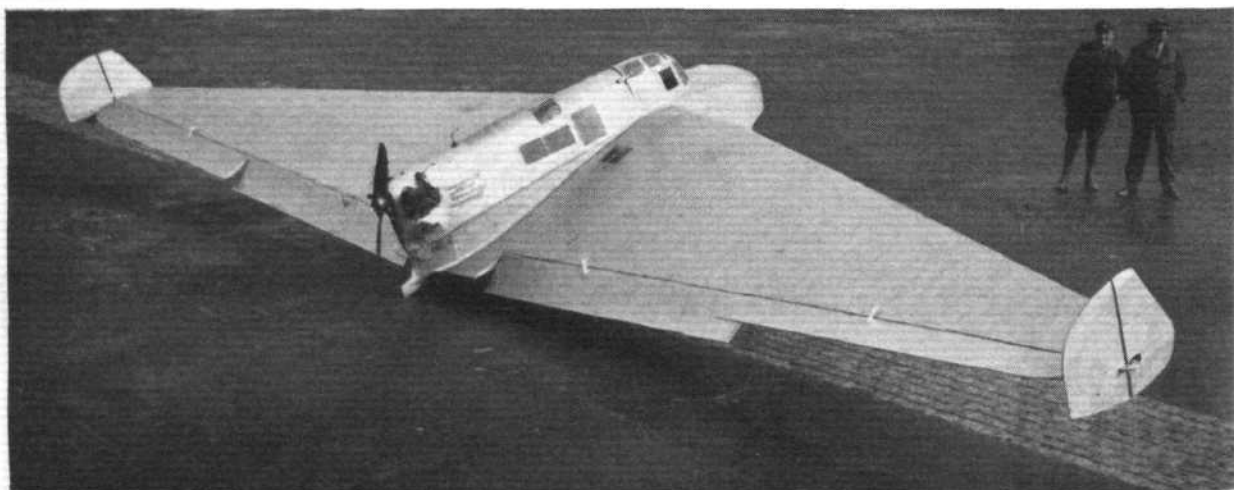
THE "HERMANN KOHL": This view from below gives a good idea of the plan form of the tailless machine



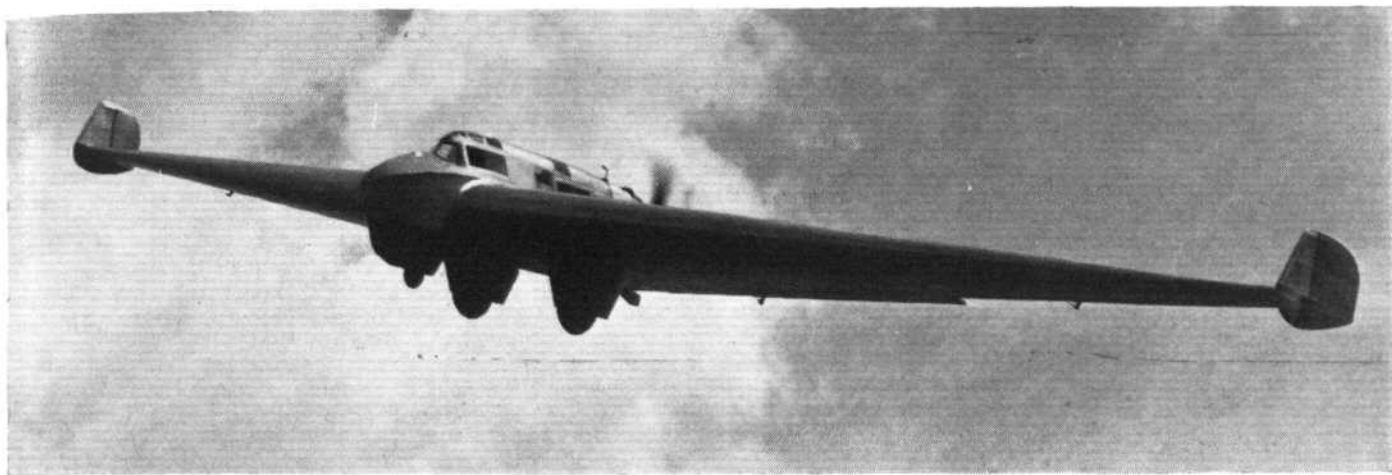
THE THREE-WHEELED UNDERCARRIAGE:
The front wheel is steerable.

From the rear seat one has practically no view of the ground, as one is situated in the centre of the wing. An old Bristol "Cherub" engine of 30 h.p. maximum output, presented by Herr Croneiss, the managing director of the Deutsche Verkehrsflug Company (which is the second largest German air transport company), is fitted at the rear end of the fuselage, and drives a metal two-bladed pusher airscrew. The cockpits are covered by hinged hoods with wooden frames and cellophane panes, some of which, at the side, are slideable.

The trailing edge of the wing on each side is formed by two ailerons, the inner set serving as elevators. The rudder fins are located on top of the wing tips, and have no lateral supporting struts, which are entirely avoided in the whole machine, giving it a very neat appearance and ensuring good aerodynamical qualities. While the fins and the attached



A BIRD'S EYE VIEW: The trailing edge flaps are divided into elevators and ailerons.



IN FLIGHT : The port rudder is seen swung outward to make the machine steer to the left.

rudders have a flat surface facing outwards, the inward surface facing towards the fuselage has a pronounced camber. The two rudders work independently, as their manner of operation is different from that of rudders on normal machines. The left rudder is solely connected with the left and the other with the right pedal, and when the machine is required to make, say, a left-hand turn, only the left pedal is moved, while the right remains stationary, and *vice versa*. By depressing the pedal the corresponding rudder is swung out and the air resistance thus caused retards the motion of the wing tip, while the other wing tip swings round unobstructed, so the machine makes the required turn. If both rudders were to be depressed together, it would merely reduce the machine's speed without causing it to turn.

The undercarriage consists of three independently-sprung wheels with low-pressure tyres. The two wheels under the wing, one each side of the fuselage, are enclosed in a streamlined casing secured to the wing, inside which rubber-cord-type shock absorbers are located. These are visible through cellon panes let into the top of the wing for inspection purposes. Similar inspection windows are provided at all points where the control cables used run over pulleys. The small front wheel is likewise encased, the casing forming a continuation of a perpendicular fin

depending from the front end of the fuselage. The wheel casing, with the wheel, can be steered by means of a tiller in the cockpit, which, however, is only used for manoeuvring on the ground.

The span of the wing is 13 metres (42.65 ft.), and its lifting surface has an area of 25 square metres (269.1 sq. ft.). Fully equipped, but otherwise empty, the machine weighs 320 kilograms (704 lb.), and is capable of transporting a load of 200 kilograms (440 lb.), making a gross flying weight of 520 kilograms (1,144 lb.). The wing loading thus amounts to only 4.25 lb./sq. ft., and the power loading is as high as 39.4 lb./h.p. The maximum speed of the machine is said to be 155 kilometres per hour (96.4 m.p.h.), and its cruising speed 140 k.p.h. (87 m.p.h.). The highest altitude so far reached is stated to be 4,700 metres (15,400 ft.).

In the hands of the pilot Groenhoff, the machine showed a surprising degree of manoeuvrability. Groenhoff said the plane steers very lightly, and he can do anything with it which he can do with any good normal machine, including looping. The latter were, however, not shown at the demonstration. The machine flew very close circles and zoomed up in a manner that would appear to indicate its having plenty of reserve power. It seemed practically non-stallable.



THE POWER PLANT: The engine is a Bristol "Cherub" driving a pusher airscrew.



AERONAUTICAL RESEARCH

Report for 1930-31 Published

THE Annual Report of the Aeronautical Research Committee for 1930-31 has just been published by H.M. Stationery Office (price 2s. net), and contains much that is interesting, although, perhaps, little that is new, as most of the subjects referred to have already been published as Reports and Memoranda.

As in previous years, the A.R.C. Report consists of a letter of submittal to the Air Minister, Lord Amulree, signed on behalf of the Committee by the Chairman, Sir Richard Glazebrook, and of Supplements dealing in more detail with the following subjects: Accidents; Fluid Motion; Interference; Performance; Works for Schneider Contest, 1927; Wind Tunnels; Gyroplanes; Flutter of Aeroplanes; Vibration of Aeroplanes; Airships; Airscrews; Stability and Control; Spinning of Aeroplanes; Load Factors; Engines; Aircraft Noise; Structures; Elasticity and Fatigue; Alloys; Meteorology; Administration.

From Sir Richard Glazebrook's Report we quote the following:

Progress of Research

In drawing up their report the Committee have had in mind the fact that it is desirable from time to time to review the progress made in aeronautical research, to note the directions in which new knowledge is likely to be required, and to plan their programme so as to meet these needs as they occur. Research during the year has been mainly directed towards (1) the improvement of performance, (2) the increase of safety and (3) the accumulation of new knowledge, and it will become apparent from the review how important is the need for new apparatus to carry out experiments arising from the increasing speeds of aircraft.

Of the papers presented to the Committee during the past five years, that which has, perhaps, most affected the line of thought and the direction of research on performance questions is Professor B. M. Jones' paper (R. & M. 1199)* in which he drew attention to the consequence of the fact that while a certain amount of resistance is a necessary consequence of the lift of an aeroplane, any addition—parasitic resistance as it is called—to this need theoretically be no greater than that due to the skin friction induced by the air flowing over the various surfaces. Many steps have since been taken to gain better performance, and the most notable single improvement has been due to the Townend ring (R. & M. 1267) for reducing the resistance of air-cooled engines. Various wind tunnel researches on the effect of the interference of one part of an aeroplane on another, and the valuable work carried out on models of the seaplanes that competed for the Schneider Trophy Races in 1927 and 1929, have also contributed greatly in this direction.

The safety of aircraft has always been regarded as one of the most important questions that the Committee have had before them. Immediately after the War a close study was started of the control of aeroplanes at low speeds and a Monograph by the Stability and Control Panel (R. & M. 1000; September, 1925), dealing with this subject, explained how loss of lateral control occurred and mentioned some devices which might be suitable for gaining better control when flying near the stalling attitude. Since that date slots and other devices for ensuring adequate lateral control at the stall have been carefully studied and considerable progress has been made, as is evident from the high proportion of aircraft at the present time that have either auxiliary devices, such as slots or interceptors, or are otherwise designed to be sufficiently controllable in low-speed flight. The Handley Page "Gugnunc," upon which extensive trials are now being made, has flying characteristics very different from those of a normal type and has a remarkable degree of control during landing and taking off.

Accidents, when thoroughly investigated, lead to new knowledge which helps to make aircraft progressively safer. Of this, the investigation in recent years of certain accidents due to flutter may be cited as a good example. The first monograph (R. & M. 1155, by Messrs. Frazer and

Duncan), dealing with flutter of aeroplanes was published in 1928, and the second monograph (R. & M. 1255) has been published this year. This work commenced as a theoretical investigation, which was verified by wind tunnel experiments in 1927, when, for the first time, flutter of different types was found to be reproducible at will on different models. In the past year investigations into the accident at Meopham have shown the necessity for guarding against a new phenomenon, which has been described as the "buffeting" of the tailplane.

To extend the field of research new apparatus is needed. A careful enquiry was made into the use of a Compressed-Air Tunnel in 1927 and of the very large wind tunnel in 1929. In both cases valuable assistance was rendered by the American National Advisory Committee for Aeronautics, who kindly undertook some comparative tests in their Compressed-Air Tunnel, which placed the value of such a tunnel beyond all doubt. A tunnel of this type has now been erected at Teddington and will be working shortly; it enables a closer comparison to be made between model research and full-scale experiment. The N.A.C.A. have already published the results of many experiments in their 20-ft. diameter wind tunnel and have demonstrated its utility.

Experiments to determine the efficiency of aerofoil sections at speeds approaching the velocity of sound have been made with the aid of airscrews run in a tunnel. The R.A.E. have in this way (in 1922*) obtained some indication of the loss of efficiency at these high speeds. The year 1927 saw the first direct experiments on aerofoils at high speeds comparable with the speed of sound; these experiments were made in a 3-in. diameter tunnel at the N.P.L. In addition to airscrews, work at high air speeds has other applications. The air speed over the wing of a Schneider Trophy aeroplane already approaches the value at which the resistance increases more rapidly than the square of the speed. It is thus evident that the study of air flow at high speeds has an important bearing on the accumulation of the new knowledge that will be required for the design not only of airscrews moving at high tip speeds but of aircraft flying at a very rapid rate. To extend facilities in this direction, it is hoped to use the air from the Compressed-Air Tunnel to run a high-speed jet some 12 in. in diameter.

In the laboratory, the visual and instrumental study of flow near the surface of a model, started in 1929, has continued successfully, and the two types of flow referred to as turbulent and non-turbulent are being examined by every available method which can be directed to that purpose. Severe difficulties are experienced in this study, owing to the small scale of the disturbances and the need that any instrument employed must approach the surface of the model within dimensions comparable with one-thousandth of an inch.

As regards the power unit, the development of engines of higher power/weight ratios, the reduction of fuel consumption, and the use of cheaper fuel per unit of power developed, are among the aspects that have been examined. The sleeve valve and the compression ignition engines have been mentioned in previous reports as possible lines of future development, and on the recommendation of the Committee two experimental engines have been built and are giving very satisfactory results on test. Two years ago a new attack was made on the problem of increasing the range of aircraft, and various steps have since been taken which have indicated how to secure a more economical running of the engine. The application of this to Service purposes is now being considered. A study of the problems involved in estimating performance at heights is given in R. & M. 1317 (by the staff at Martlesham and Mr. H. T. Tizard).

Mention is made of the increased attention now being paid to detonation in engines. In 1925 the late Professor Callendar, at the request of the Air Ministry, started an investigation into this matter, and formed the view that it was due to the formation of organic peroxides. At the same time, Dr. Egerton was studying the progress of flames in certain detonating mixtures. Both these investigations have continued, but the practical result is that nothing

* Also Royal Aeronautical Society Lecture, January 10, 1929.

* R. & M. 884.

better than ethyl fluid has been found, nor are the exact characteristics which determine the nature of detonation yet wholly understood. There is no doubt that the risk of detonation is one of the most important factors at present limiting the power output and efficiency of engines using light fuels.

With this brief survey the Committee turn to the new apparatus which is needed to solve some of the outstanding problems and to aid in the accumulation of that new knowledge essential to progress.

New Apparatus

The question of new experimental facilities has been referred to in earlier reports, and the Committee are glad to report important progress during the year.

The Compressed Air Tunnel at the National Physical Laboratory has been erected, and the containing shell, 17 ft. in diameter and 50 ft. long, has been tested under water at a pressure 50 per cent. greater than that at which it will be worked. Extensive experiments on a model of this tunnel (R. & M. 1355) were completed at an earlier date, and the design best fitted to give uniform and steady working conditions has been adopted for the internal metal structure, which provides an air jet 6 ft. in diameter, in which the models will be placed. The airscrew and motor have still to be fitted, but it is hoped that preliminary trials will be completed this summer. The Compressed Air Tunnel will be invaluable for conducting certain classes of experiments on models whose behaviour is sensitive to change of scale, under conditions which theory indicates are directly comparable with those of full-scale flight.

The staff of the Royal Aircraft Establishment have designed a 5-ft. open-jet wind tunnel, which is now in regular use and runs at speeds up to 170 ft. per sec.—a high value for this size of tunnel. The design has proved wholly satisfactory and will be used as a basis for a 24-ft. open-jet wind tunnel, approval for which has been given during the past year. In this large tunnel direct experiments on the central parts of aeroplanes and on the running of aeroplane engines under flying conditions will be possible. Such experiments require a large amount of time in fitting up the aircraft for a test, and accordingly arrangements will be made so that, while one aircraft is under test, two others can be in process of erection.

The staff of the R.A.E. have also designed a model vertical tunnel, about 2 ft. in diameter, in which small models of aeroplanes spin freely in an upward jet of air for periods of over one minute (see Illustration No. 1). This design is being made the basis for a tunnel 12 ft. in diameter in which to make experiments on the balsa wood models that have previously been tested for spinning characteristics by dropping them from a height.

Two new monoplanes of the "parasol" type have been designed and constructed for research purposes, and will supplement by tests on wing sections at full-scale Reynolds numbers the information obtainable in the 24-ft. wind tunnel. These will render possible the trial in the air of new wing sections more readily and cheaply than previously. The design of each monoplane is arranged so that the forces acting upon its wings can be directly measured in flight.

A proposal has been made for the replacement of the N.P.L. 7-ft. No. 1 tunnel which has now become obsolete. In the same building can be fitted two open-jet tunnels of the return flow type with an 8-ft. diameter working chamber. The necessary expenditure has been authorised, and it is hoped that the first of the 8-ft. tunnels will be completed during the current year. Model experiments have already provided the data necessary for the construction of two efficient tunnels in the existing building. Double return flow passages will be used.

In addition to the above aerodynamic developments, the construction of a high-speed water tank for the testing of seaplane models has been commenced at the R.A.E. Seaplane research has developed but slowly on account of the lack of adequate facilities for model tests, and it is anticipated that faster progress in the development of this type of craft will be possible when the full-scale researches at the Marine Aircraft Experimental Establishment at Felixstowe can be aided by the more rapid methods of experiment possible with models in a water tank.

Progress during the Past Year

Performance.—Various methods of estimating the performance of aeroplanes have been put forward from time to time; these have all aimed at a simple method of reduction or of comparison between the performance of one

aircraft and another. During the past year a paper (R. & M. 1316) by Mr. Stevens and Mr. Woodward Nutt has been communicated which gives a series of charts for this purpose. The charts make it possible to deduce readily the performance of an aeroplane under standard atmospheric conditions, and it is expected that they will prove of considerable value.

The staff at Martlesham have also made a lengthy investigation into the performance of an aeroplane when taking off and landing. Abnormal rates of climb for aeroplanes near ground level have been known for some years and have been attributed to the rapid variations of wind velocity. Recent experiments have clearly demonstrated this, and the whole problem has been worked out in considerable detail. In addition, the staff have carefully determined the aerodynamic characteristics of the aeroplane when landing, and have obtained results (see R. & M. 1406) which suggest that a lift in excess of the normal is then found. Wind tunnel experiments indicate that the cushioning effect of the ground is not sufficient to account for this high lift, and the matter is one which needs further research.

The performance of an aeroplane is greatly affected by the mutual interference of adjoining parts of the structure, and the researches on this subject at the N.P.L. and the R.A.E. have been continued. When two portions of an aeroplane are tested together in their relative positions the drag is often greater than the sum of the drags of the parts when measured separately. A reduction of resistance is obtained through a better knowledge of the direction of the air flow, which should remain as nearly as possible the same past each part of the composite structure as past the separate parts so as to avoid the creation of unnecessary turbulence. A report (R. & M. 1344) on the influence of a fuselage on the lift of a monoplane, explains that the small lift coefficient of the low-wing monoplane is due to the interference of the fuselage with the flow over the wing which is more marked with the low than with the high wing. In R. & M. 1395 it is found that the interference of a nacelle on a monoplane wing is appreciable up to 7 nacelle diameters on either side. Another report, T.3035*, indicates that high interference drags are found when the nacelle is close above the wing. Some of the above results can be calculated from theory, and work of this kind has been put in hand in connection with R. & M. 1395.

There remains to be investigated the question of turbulence in the wind tunnel and its effect on models. It is hoped to gain some general knowledge by visual methods of the mutual interference of various aeroplane parts; in other cases, such as the supporting strut under a monoplane wing, experiments will have to be made on a large scale, as the small scale measurements already completed have failed to give reliable results.

Intimately connected with interference problems is the use of a Townsend ring for reducing the drag of bodies fitted with air-cooled engines. The behaviour of the ring and its good effect on performance have now been amply demonstrated. This ring must be considered as a device for reducing total drag by decreasing both turbulence and the breakaway of the flow from the surface of the body.

Engines

During the year the Air Ministry Laboratory have carried out a number of researches on the effect of lubricating oil in increasing the detonation tendency of liquid fuels. Lubricating oil dissolved in the fuel impairs the anti-knock properties conferred on the fuel by the addition of dopes; Mr. King and Dr. Moss have shown (R. & M. 1362) that with ethyl fluid or benzole the effect is less pronounced than with either iron or nickel carbonyl. No fuel or combination of fuels and dopes has been found which is as free from detonation at high compression ratios as fuels to which tetraethyl lead has been added.

Compression ignition engines have provided a new field in which inquiry is continuing. Several types are under trial in the experimental stage, and there appears considerable scope for the use of this form of engine in aircraft. The Committee are publishing a paper (R. & M. 1365) by Mr. Pye in which he puts forward certain conclusions as to the limits to which the compression ratio may be profitably raised in a compression ignition engine, under conditions in which the maximum pressure is limited to some pre-determined value.

As regards sleeve-valve engines, the findings of the special Panel, which were referred to in the last Annual

* To be published.

Report, are now bearing fruit. A single sleeve-valve petrol engine has already been constructed to aircraft engine scantlings, and the results of preliminary tests hold out good promise that this first of its type may lead the way to an important new line of development.

It has been known for some time that multi-cylinder engines consume far more fuel than would be expected from experiments on single cylinders, and that this is due to the uneven distribution of the mixture of fuel and air to the various cylinders. This uneven distribution is now almost accepted as inevitable in practice, in spite of many empirical experiments which have been made to improve the distribution of particular engines. The Committee believe, however, that the whole subject has never been thoroughly attacked in the light of existing knowledge, and a Panel has therefore been appointed to go into the question and review, with the aid of the industry, the present position regarding carburation and air intake problems, and to make recommendations as to the most promising lines of investigation.

The behaviour of lubricating oils in service is another matter of first importance. The life of many aircraft engines before overhaul mainly depends on the length of time that piston rings and valve stems remain perfectly free from gum or hard carbon produced by the oxidation of lubricating oil. There are various indications that a further scientific inquiry will reveal methods either of inhibiting the formation of gum in lubricating oils or avoiding its bad effects by simple methods.

Another problem in connection with lubricating oils is that it has hitherto been found extremely difficult to devise physical and chemical tests which will form a real guide to the qualities of an oil for use in aircraft engines. The Committee have had evidence that the present specifications do not meet practical needs. A Panel has therefore been set up to inquire into these matters in consultation with the industry.

Spinning of Aeroplanes

An outstanding problem bearing on safety relates to the spinning of aeroplanes. This is receiving the full attention of the Committee, and four lines of research are proceeding.

The full-scale experiments have continued, and a detailed report is expected shortly on trials of the Bristol Fighter under a great variety of conditions of flight.

In the wind tunnel, models with a fuselage deened near the tail and with different positions of the tailplane unit have been tested to find out the characteristics that assist in bringing aircraft, otherwise dangerous, out of a prolonged spin. Certain modifications have been suggested which are intended to reduce the wash from the tailplane on the rudder during a flat spin, and these will be shortly tried out on an aeroplane.

The model tests on the Fairey III.F seaplane have been completed at the N.P.L. The floats have a marked effect, and it would appear that if a landplane does not come out rapidly from a spin, then when the same type is fitted with floats, its behaviour should be carefully studied before it is flown in prolonged spins. Full-scale spinning experiments on seaplanes are proceeding.

The fourth method of experiment has been the dropping tests on light balsa wood models in the R.A.E. Balloon Shed. These have been successful in developing a good technique for such free flight experiments, using a cinema to record the whole motion in the air, and in confirming

the conclusions reached from model experiments on a deepened body and a displaced tailplane carried out at the N.P.L. Owing to the success of the method, suggestions have been put forward for a more effective means of experiment, using a vertical upward airstream of about 12 ft. diameter, in which the models can continue spinning for some time without appreciable change in height. Small-scale experiments on this novel idea have proved successful, and, as this type of experiment has obvious advantages over the dropping method, the construction of the apparatus for producing a vertical upward airstream of large diameter has been put in hand.

Load Factors

The strength of an aeroplane has an obvious bearing on its safety. The Load Factors Sub-Committee were appointed to examine generally the assessment of load factors for modern aircraft and to pay special attention to the question of the stresses that might be produced by high accelerations. At one of their meetings the Sub-Committee had the advantage of the presence of Sir Thomas Lewis to discuss physiological problems.

It appears that, if a pilot experiences an acceleration of 5 g. or over, he is liable temporarily to lose his physical senses, particularly that of sight. An acceleration of this order may be experienced in a rapid pull-out from a dive or in very tight turns such as occur during races for the Schneider Trophy. Some discomfort is also experienced at lower accelerations if they persist for an appreciable length of time.

The present load-factor scheme allows for an acceleration of 7-8g under the worst conditions of flight, and the Sub-Committee have not felt it necessary to recommend any increase of the load factor for the acrobatic type of aeroplane, either service or civil. In fact, the general scheme at present in use appears to be satisfactory, with the exception of the conditions for inverted flight. Regarding this, the Committee have proposed modifications in the methods of calculating for airworthiness purposes the stresses imposed on the acrobatic aeroplane in inverted flight. To ensure a satisfactory application of the calculations for airworthiness for this type of flight, certain wind-tunnel data have been obtained on a number of wing sections. This information has been published as R. & M. 1383.

For civil aeroplanes not in the acrobatic class, it has been felt that the terminal nose dive condition should now be replaced by other conditions more nearly approaching those met with in flight. The original condition, though shown by considerable war experience to be safe, was arbitrary and did not in any way represent modern civil use. The proposed new conditions are given in detail in a supplement to this report.

There is still a lack of knowledge of the accelerations experienced, both by military and civil aircraft, under all conditions of flight, and, with the aid of accelerometers, it is hoped gradually to collect information on this subject from which the airworthiness conditions may be more accurately laid down. It is also desirable, as the enquiry into the accident at Meopham has shown, to have information on the amount of turbulence and the magnitude and sharpness of the boundaries of up and down currents in the atmosphere. A special Panel is dealing with these questions.

(To be concluded.)

PRESENT PRACTICE IN AERIAL SURVEY

SPEAKING before the Society of Engineers at Burlington House, W.1, on Monday, October 5, Major C. K. Cochran-Patrick, D.S.O., told his audience, in clear and concise terms, a very great deal of the "how and why" of aerial survey.

He described some of the difficulties which are met with when making an aerial survey of a certain territory, but compared them very favourably indeed with the difficulties incurred in making a survey of the same area from the ground.

The processes necessary before the photographs taken could be made into maps were explained at some length, and the use of both oblique and vertical photographs for this purpose for maps of such widely differing scales as 1/250,000 and 1/1,000 was further elucidated with a number of lantern slides. As an example of the work necessary, many slides of Northern Rhodesia were shown, and the whole method, starting from the taking of a series

of vertical photographs along lines running E. to W. across the area, clearly shown. The co-ordination, by stereoscopic means, of the subsequent oblique views, which were taken on lines running N. and S., was then explained, and so on down to the final plotting of the maps themselves.

The methods by which accuracy is obtained when maps of large scale from vertical photographs are made, was the next subject of discourse, and the lecture wound up with a number of very interesting slides showing the many other uses, such as archaeological, forestry and pure engineering projects, to which aerial photography may be put. The lecturer did a great deal to dispel the idea that aerial survey was an inexact science, and we expect that increasing interest will be shown, by all engineers who require surveys, in the extent to which the Aircraft Operating Co., of New Square, Lincoln's Inn, can solve their problems.



A MODERN AIRCRAFT

AN aircraft which breaks away from the Wright Bros.' lay-out, and which incorporates many really modern features, is the Monospar. This machine is at present being developed in a factory at Croydon Aerodrome by the General Aircraft Co., Ltd., and has been designed by Mr. Stieger. It was described in FLIGHT for July 10, and now that we have been able to try it out for ourselves, we are able to say more about it. We have always maintained that to sell aircraft to the average user, they must be as comfortable and as well fitted as the ordinary motor-car. Few aircraft fill these requirements, but the Monospar in its production form will certainly do so, and should, therefore, sell well.

The existing model was primarily built with the avowed intention of trying out the principles involved in manufacture, particularly the Monospar wing and fuselage, and not with the idea that it was the first of its type. In the first place, it is flying with somewhere about one-half of its designed horse-power, owing to the fact that the engines for which it was designed were not available when it was ready and comparisons cannot therefore, in fairness, be made with the production



THE MONOSPAR: The clear view which the pilot has ahead, whichever side of the machine he is sitting, is shown very clearly in these views. In its latest form a small air-wheel replaces the tail skid which makes handling on the ground exceptionally easy. (FLIGHT Photos.)

it possible to manoeuvre the machine through the thickest of ground traffic unaided by anyone on the wings. This is a point which is rapidly becoming a problem of peculiar urgency, since at even a small flying meeting nowadays we are quite likely to have anything up to 50 aircraft present.

In the air the Monospar is equally comfortable. Even with the existing engines the present model can maintain its height on one engine and turn against that engine with

model which should be out shortly. A very good idea can be gained, however, as to what the new type will provide, and that it should cause quite a stir in aeronautical circles seems certain.

After flying a conventional aircraft with a single engine in front, it is a revelation to get into the Monospar and find an absolutely unobstructed view in all directions, the sense of relief and security which this gives the private owner will be a very strong selling point for this machine. On the ground one is at once struck with the sensibility of the whole lay-out, the brakes are operated in just the most handy manner, so that their use immediately becomes quite natural and these together with the two engines make

ease, while the controls are positive and very effective in all directions. One point which will have to receive attention not only in the Monospar, but in all low-wing cabin monoplanes, is the reflection from the upper surface of the wing on the front windows of the cockpit. We imagine that the wing will have to be doped with a dark matt surface or something of a similar nature, for with an aluminium finish

the windows become distinctly difficult to see through when the sun is anywhere abaft the beam.

The new model will be a full four-seater, fitted with two Pobjoy engines, and will be one of the fastest light aircraft in this country. If it maintains the extremely quick take-off and the easy landing qualities of this first model, then it will certainly be one of the most desirable aircraft extant.

A NEW DORNIER MACHINE

The Do-K Twin-Tandem Engined Monoplane

IN his latest type Dr. Claudius Dornier has departed considerably from what has come to be regarded as standard Dornier practice. This may be, and probably is, due to the fact that for once the machine in question is a landplane, whereas of recent years by far the greater part of Dornier productions have been monoplane flying-boats, but the structural details also differ considerably. The Do-K, as the latest type is called, is a four-engined, high-wing monoplane, with the engines arranged in two tandem pairs, and placed a very considerable distance below the wing. In the experimental machine, which is now undergoing the company's test flights at the Löwenthal aerodrome, near Friedrichshafen, the engines are 240 h.p. Walter "Castors." Presumably when the production type is placed on the market other makes of engine of similar power can be substituted.

The plan form of the wing of the Do-K shows an approximately straight trailing edge, while the leading edge is of approximately elliptic curvature, with pronounced taper in chord towards the wing tips. The wing is built as a pure cantilever structure.

Of what appears to be very good streamline shape, the fuselage is of oval cross-section, with the monoplane wing attached to the top. In the nose of the fuselage is a luggage compartment. Behind that is the pilot's cockpit,

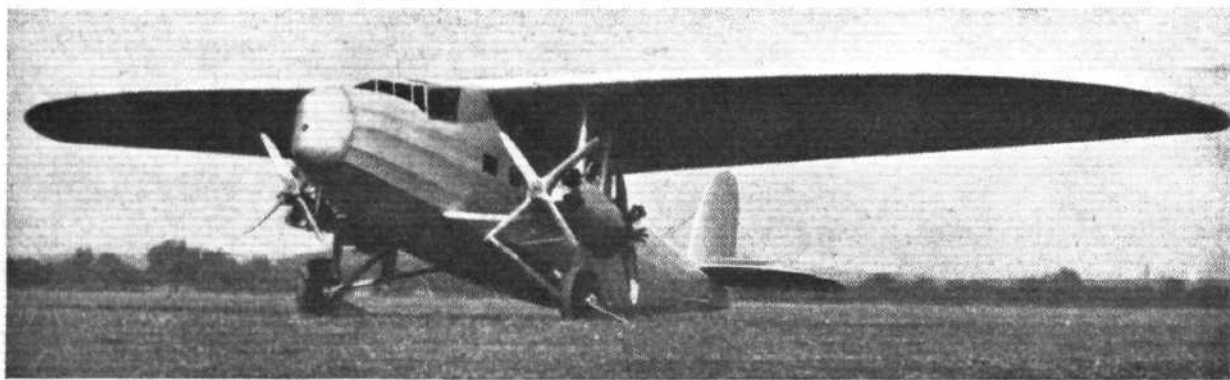
and aft of that again the cabin, which has seating accommodation for 10 passengers.

Although the Do-K is still undergoing tests, certain facts concerning performance, etc., have already emerged. For instance, when flying at 1,000 m. (3,300 ft.) altitude, it was found that with two of the four engines stopped, the rate of climb was still 0.4 m./sec. (79 ft./min., or a little less than the rate of climb corresponding to service ceiling). Presumably this figure was obtained with the machine carrying full load, although this cannot definitely be ascertained at the moment.

The main dimensions and weights of the Do-K are as follow:—Length, 16.5 m. (54 ft. 2 in.); wing span, 25 m. (82 ft.); height, 4.2 m. (13 ft. 9 in.); wing area, 88 m². (948 sq. ft.); weight, bare, 3 600 kg. (7,925 lb.); tare weight, fully equipped, 4 000 kg. (8,800 lb.); gross flying weight, 6 000 kg. (13,200 lb.); wing loading, 14 lb./sq. ft.; power loading, 13.75 lb./h.p.

At a gross weight of 13,200 lb. the following performances were attained during test flights:—Maximum speed, 220 km./h. (136.5 m.p.h.); cruising speed, 200 km./h. (124 m.p.h.); ceiling, 6 300 m. (20,650 ft.); ceiling with one engine stopped, 3 800 m. (12,500 ft.).

At a later date we hope to describe this machine in greater detail.



THE Do-K: The latest type to be produced by the Dornier works of Friedrichshafen, a four-engined commercial landplane. The engines are Walter "Castors."

THE U.S. NATIONAL AIR RACES

ACCORDING to an American correspondent, one of the biggest hits in the National Air Races, which were recently held at Cleveland, Ohio, was the crazy flying of Flt. Lt. R. L. R. Atcherley, of the Royal Air Force. His performance was particularly notable as only five days before he had been injured in a forced landing.

Atcherley added a touch of humorous acting to his display by assuming the rôle of an Oxford professor demonstrating the art of flying with the aid of a text book. He dressed himself in a top hat and frock coat, and after expounding his profound theory that "What goes up must come down," he entered the cockpit and began to sit facing the tail until his error was pointed out. He flew a Curtiss "Fledgling." A parachute competition was a feature each day during the Races, the jumpers being required to jump at not less than 2,000 ft. and fall "free" no more than 200 ft.

Several types of parachutes were used by the competitors. The Irvin competitors won nine first prizes out of a possible ten, also six second prizes and five third prizes. Of the total prize money, amounting to \$2,200.00, they received all but \$540.00.

Four lives were saved by Irvin parachutes during the races; two marines being forced to jump when they collided in an air combat, an Army pilot following suit when his machine got out of control, and the fourth airman, Walter Hunter, one of the Hunter brothers who created a world's record for endurance flight, escaped from his burning plane at 175 ft.

Caterpillar Pins were presented to the two marines by Mr. David Ingalls, Assistant Secretary of the Navy for Aeronautics, before the National Air Races finished. The Thomson Trophy, an event in which competitors had to fly ten times round a ten-mile course, was won by Mr. Lowell Bayles on a "Gee Bee" at 237 m.p.h.

PRIVATE FLYING AND CLUB NEWS

The National Technical Competition for Tourist Planes, 1931

FAVOURED by fine weather the National Technical Competition for Tourist Planes opened September 22 last at the Orly Aerodrome. A series of technical tests were conducted for eight days and these were followed by a 3,500 km. tour of France which started on October 5.

Four planes were entered:—The Albert A.61 (95-h.p. Salmson); the Albert A.62 (95-h.p. Renault); the Blériot Guillemain (95-h.p. Renault); the Caudron "Luciole" (95-h.p. Salmson). Five other machines had been entered, but for various reasons were unable to be ready in time.

Entries were limited to two-seater planes, equipped with a power plant not to exceed 120 h.p., and entered by French houses. The planes and motors were required to be constructed in France and the crews of the planes to be French.

The Competition comprised:—
1. A series of technical tests—
(a) flight tests; (b) an examination of the qualities of the construction of the planes.

2. A demonstration tour. This tour comprised about 3,500 kilometres (2,250 miles) around France, to be flown in 9 days, and all the planes entered in the competition were required to take part in it.

A maximum of 850 points were awarded in the flight tests, as follows:—Take off and landing, 200; climb, 50; speed, 120; ease of manoeuvring and piloting, 80. Qualities of construction received 400 points—of which a maximum of 230 was for comfort and safety.

The crew of each machine had to consist of two persons, equipped with parachutes of an approved type, each person being reckoned as weighing 80 kg. (any difference being made up with ballast); each, in addition, was allowed 15 kg. of baggage. Amongst other requirements called for, or for which additional points were awarded, were the following:—Metal construction; metal airscrews; efficiency of brakes; folding or detachable wings; power plant readily accessible; prevention of fire; the comfort and appearance of the machine as a whole; visibility.

The Competition was held under the rules of the F.A.I., and was presided over by a Board of Judges, comprising seven members, four of which represented the Air Ministry and three the Aeronautical Associations.

Cash prizes to the amount of 300,000 francs will be awarded as follow:—1st prize, 150,000 francs; 2nd prize, 75,000 francs; 3rd prize, 25,000 francs; 4th, 5th, 6th, 7th and 8th prizes, 10,000 francs each.

A brief description of the planes entered is as follows:—



The Caudron "Luciole" C.270 open cockpit biplane, fitted with a 95 h.p. Salmson engine.

The Albert A.61 and A.62 planes are low-wing, two-seater, open cockpit, single-engine monoplanes. They are identical in construction and equipment, except that the A.61 is fitted with a Salmson 95-h.p., radial 9-cylinder, air-cooled motor, while the A.62 is equipped with a Renault 95-h.p., 4-cylinder in line air-cooled engine. Both are direct connected. The detachable wings are of cantilever construction and consist of three sections. A solid centre section forms part of the fuselage, to which the outer wing sections are attached, and which are set at a 4 deg. dihedral angle. The wings and fuselage are constructed of wood and covered with plywood. The pilot and passenger seats are in tandem, and fitted with dual controls.

The Albert plane is designed to be equipped with any of the standard air-cooled motors of 60 to 95 h.p. The engine is mounted on a framework constructed of duralumin tubes. A fireproof partition separates the motor from the first bay of the fuselage in which the fuel tanks are installed. These have a capacity of about 125 litres, which gives the plane a flight radius of about 1,000 km. (625 miles) at a cruising speed of 160 km./hr. (100 m.p.h.).

The landing chassis is of the split-axle type with a spread of 1.90 metres between the wheels. It is fitted with Messier shock absorbers and brakes. Both planes entered in the Competition have wooden airscrews.

The Blériot Guillemain JG.10 is a low-wing two-seater (side by side) cabin monoplane. The fuselage is constructed along the lines of an automobile and is especially



The Albert A.62 low-wing monoplane, with 95 h.p. Renault. A similar machine, but with a 95 h.p. Salmson, was also entered.



The Bleriot Guillemain J.G.10 low-wing monoplane, with 95 h.p. Renault. Trouble with the petrol feed system "eliminated" this machine from the competition.

designed for comfort. The top of the cabin consists of a raised hood, which gives a perfect visibility in all directions. The wings are of the folding type, constructed entirely of wood and covered with plywood. The framework of the fuselage is constructed of duralumin tubing, the larger part of which is covered with duralumin sheet, the rest with plywood. There is a good sized baggage compartment sufficient to hold two large valises. The landing chassis is of the split-axle type with independent wheels and oleo-pneumatic shock absorbers. A metal airscrew is fitted.

The Caudron "Luciole" C.270.—A two-seater, open-cockpit biplane, fitted with folding wings, and equipped with a 95-h.p. Salmson, 9-cylinder, radial air-cooled motor. The fuselage and wings are constructed of wood and covered with fabric. The landing chassis is fitted with shock absorbers and brakes. The motor supports are constructed of steel tubing, electrically welded, which furnish an elasticity to their juncture with the fuselage, thus avoiding vibrations.

Owing to a leak in its fuel feed-pipe system the Blériot Guillemain plane, piloted by Quatremarre, was obliged to land during the Speed Competition held on the second day of the Meeting. The plane was consequently thus eliminated from participation in the National Technical Competition, and none of its performances were published.

The Climbing Competition was the first event to be contested, and, together with the "Presentation" of the planes, occupied the opening day of the National Technical Competition on Tuesday, September 22 last. This Climbing Competition was for the highest altitude above the Orly Aerodrome, as recorded on the barographs of the competing planes during the first 25 minutes after their take off. The results were as follow:—

Albert No. 1 (Renault), piloted by Sautereau, 2,530 metres—6 Points.

Albert No. 2 (Salmson), piloted by Edmond Albert, the Constructor, 2,675 metres—10 Points.

Caudron "Luciole" (Salmson), piloted by Maurice Finat, 2,430 metres—4 Points.

The other competitions taking place on the three following days of the Meeting, together with the classification of the planes and the points awarded, were as follow:—

The Take Off Competition.—Points were awarded for the shortest distances effected in passing over an "obstacle" consisting of a cord stretched between two posts 8 metres (26 ft.) in height.

Albert No. 1, 290 metres—22.60 Points.

Albert No. 2, 249 metres—33.26 Points.

Caudron "Luciole," 187 metres—64.70 Points.

The Landing Competition.—This took place under the same conditions as the take off competition.

Albert No. 1, 254 metres—31.96 Points.

Albert No. 2, 267 metres—28.58 Points.

Caudron "Luciole," 199 metres—59.90 Points.

The Caudron plane was also awarded 10 points additional in each of the preceding competitions for having effected the best results in them.

The Speed Competition.—This contest was flown over a circuit of 486 km. (305 miles), the itinerary of which consisted of Orly-Artenay-Orly.

Albert No. 1, 153 km. per hr.—29.50 Points.

Albert No. 2, 146 km. per hr.—19 Points.

Caudron "Luciole," 151 km. per hr.—26.50 Points.

Folding and Detachable Wings.—In this contest the Albert machines each gained 12 points. The wings were unmounted and folded in 3 min. 48 sec., and remounted in 13 min. 2 sec.

The Caudron "Luciole" gained 23 points, the wings being folded back in 44 sec. and opened out in 48 sec.

Starting Competition.—Albert No. 1, motor cold, 3 sec.; motor warmed up, 5 sec. average—3.5 Points.

Albert No. 2, motor cold, 3 sec.; motor warmed up, 1 sec. average—15 Points.

Caudron "Luciole," motor cold, 1 sec.; motor warmed up, 1 sec. average—15 Points.

Up to this stage the classification of the planes and the points awarded were as follow:—1, Caudron "Luciole," 203.10 points; 2, Albert No. 2, 117.84 points; 3, Albert No. 1, 105.50 points.

The Meeting was continued last week, when the remaining competitions, such as the facility in handling, ease of piloting, quality of construction, etc., were decided. We hope to publish the results in next week's issue.

R. C. W.

THE CARDIFF MEETING

THE first pageant at the new Cardiff City Municipal Aerodrome was held on Saturday, October 3. It was preceded by a lunch, at which the Mayor (Alderman R. G. Hill Snook, J.P.) presided, and in a short speech he said that, although in the past Cardiff had generally been backward in introducing innovations and other improvements to the city, they had in the case of aviation he thought justified their attitude, for, as they had seen what other cities had done, they had been able to profit by other people's mistakes, and therefore establish their own Municipal Aerodrome with every chance of making it a great success. Capt. W. R. Bailey, whose work is responsible for the establishment of the Aerodrome, also spoke, and asked everyone to co-operate in furthering the success of their airport.

The meeting itself was, we hope, a foretaste of the way in which aviation matters will be handled in Cardiff in the future. It was excellently run with very few flaws in the organisation. The Aerodrome is peculiarly well situated for dealing with large-sized crowds, as the banks round its edge form natural barriers, which do not have to be augmented to any very large extent. It was evident that there had been no difficulty in securing the co-operation of the local police force, and a large body of these officers kept a crowd numbering some 8,000 in perfect

control. The pilots and other guests were well looked after, and treated with a courtesy which should be copied by other aerodromes. The actual landing area is not very large at the present time, but there is plenty of room for further development, while its position would seem to indicate the utilisation of one side as a seaplane landing station. It is close to the town and, in fact, is quite as good, if not better, than any other municipal aerodrome. The meeting was well attended by some 40 aircraft of various types, including the "Arrow Active" (Hermes IIb.), flown by F/O H. H. Leech; the "Bristol Bulldog" (Jupiter), flown by Capt. C. F. Uwins; the "Cutty Sark" (two Gipsy II's); the "Autogiro" (Genet Major); the "Westland Wessex" (3-7 cylinder Genets); the "Redwing" (Genet); Mrs. Victor Bruce's "Bluebird" (Gipsy III); the "Monospar" (two Salmsons), piloted by Flt. Lt. Schofield; some "Klemms"; a "Swift" (Pobjoy); the "Elf" (Hermes); and many "Puss Moths," ordinary "Moths," and "Avians," to say nothing of several joyriding Avros and Desoutters. The first item on the programme was the Heston-Cardiff race, with the winning machines arriving somewhere about 2.45 p.m. Mr. H. R. A. Edwards was first in his old Avro "Baby" (Cirrus I), F/O Selway was second in a "Moth" (Gipsy I), and Flt. Lt. F. G. Gibbons, in a

THE HESTON—CARDIFF RACE

"Spartan" three-seater (Gipsy II), was third, with Col. and Mrs. Strange in the front cockpit! As usual, the handicapping, which was the work of Capt. Dancy, was excellently done. Capt. Dancy is really a wizard at estimating speeds, and, in fact, the only case we know of when he was beaten was an occasion when, without his colleague, Mr. Rowarth, he essayed to estimate the weight-putting-on capacity of his small daughter, whom, it is said, beat him to a specified weight by two days. Other items on the programme were an excellent display of inverted flying by Flt. Lt. Clarkson in the Selfridge Co.'s "Moth," specially fitted for the purpose; a demonstration of the "Autogiro" by Mr. Rawson; an illustration of just what a high-powered single-seater can do, by Capt. Uwins; and another aerobatic display on a "Comper Swift." Previous to this there was the usual fly-past, in which some 15 machines took part, and this again was extremely well arranged, the public being allowed a very good view of the machines, both while taxiing and flying. Further attractions were a balloon-bursting competition, "bombing the baby," and a parachute jump by Capt. Stewart. Finally, there was a Cardiff-Newport and back race for a cheque presented by the *South Wales Argus*.

THE LONDON AEROPLANE CLUB has lately increased the scope of its flying activities. One Gipsy "Moth," equipped for night flying, has seen no less than five "B" licence aspirants successfully through their tests, and several members have taken advantage of the reasonable terms fixed for dual on night landings to gain experience in this direction.

On another of the Club fleet a hood has recently been fitted, which envelops the pupil in that murky translucence generally discovered in cloud and fog. As training in instrument flying is recognised as essential, dual on this machine has proved extremely popular.

AVIATION AT BROOKLANDS.—The special winter bonus of 20 per cent. on flying fees at Brooklands has resulted in a large number of enquiries from prospective pupils. For those who are really serious about aviation there is no doubt that the winter months are the best in which to learn, since the instructional staff are able to give much more individual attention than during the rush of the summer season.

Last week it was decided to add wireless to the amenities of Brooklands, both for the receiving of weather reports and the better instruction of pupils, and the wireless station is now well under way.

At the same time, the decision has been taken to offer a complete blind flying course, with machines fitted with a hood and equipped with Reid & Sigrist turn indicators in both cockpits. Details regarding the cost and length of this course will be announced in the near future.

The activities of the School should not, however, be allowed to eclipse the work of the Brooklands Aero Club, which was originally started with the idea of giving pupils of the School, or other "A" licence pilots, cheap aviation, while affording opportunity for the School instructors to keep a friendly eye on the standard of flying of the Club's fledglings, and check, in a firm though friendly manner, any incipient faults. The Club really represents the post-graduate stage of a private pilot's flying education. In particular, it affords opportunity for "A" licence pilots to get cross-country flying experience, and this week the Club machine put in 15 hours of cross-country flying.

The School's new pupils this week include Messrs. Hutton, Piper and Todd. Mr. Todd hails from Tanganyika and was recommended to join the School by one of Mr. Lowdell's old pupils, who had just taken up residence in that country. Our latest Indian pupil, Mr. J. R. Row, has successfully completed all the tests for his "A" licence. Mr. Roger Frogley has just passed the technical examination for his "B" licence after coaching by Mr. E. A. Jones, the Brooklands navigation expert.

CINQUE PORTS FLYING CLUB.—The weather during the week ending September 26 was a little better than of late, and flying time was 22 hr. 10 min. On Tuesday,

	Aircraft	Engine	Pilot	Handicap min. sec.	Finish	Av. Speed m.p.h.	Place
UM	Avro Baby	Cirrus I	H. R. A. Edwards	00 00	h. m. s.	81½	1
KJ	Spartan 3-str.	Gipsy II	Flt. Lt. F. G. Gibbons	12 01	1:28:27	94	2
OY	Moth	Gipsy I	F/O. A. O. Selway	12 27	1:28:31	94½	3
NT	Civilian Coupé	Genet Major	F/O. V. S. Bowling	12 52	1:33:33	89	10
IO	Elf II	Hermes II	F/O. M. Griffiths	13 43	1:32:31	91½	9
CI	Klemm	Cirrus III	Capt. O. Kennard	14 08	1:35:17	88½	11
JH	Moth	Gipsy II	L. M. J. Balfour	17 40	1:30:04	99½	7
ZF	Swift	Pobjoy R.	Sqd.-Ldr. J. Robb	24 28	1:29:35	110½	5
CC	Bluebird IV	Hermes II	E. C. T. Edwards	24 46	1:29:28	111½	4
ED	Sports Avian	Hermes II	Miss Brown	25 05	1:31:42	108	8
JR	Swift	Pobjoy R.	B. Mayer	25 41	Retired	—	—
YA	Puss Moth	Gipsy III	Lady Bailey	26 51	1:29:35	114½	5
KH	Martynside AV1	300 Hispano	F/O. J. McKenna	29 36	Retired	—	—
IX	Active	Hermes II B	F/O. H. H. Leech	31 08	1:29:49	122½	6

Lt. Com. T. S. B. Gubbins inaugurated his new flying field at Barham, and the informal opening was attended by Miss Aitken in her own aircraft, Mr. and Mrs. K. K. Brown in a Club machine, Mr. Waller, who arrived as passenger in Com. Gubbins' machine, Mr. Barringer and Mrs. Hammond Davis, in one of the "Bekesbourne Moths," and several members and friends who arrived by car.

On Wednesday, two first solos were achieved by Mr. A. S. Owen and Mr. N. Rothwell respectively.

LANCASHIRE AERO CLUB.—Saturday, September 26, was a day of Landing Competitions, no less than three being flown off on this date. The usual Quarterly Contests for the Pemberton Trophy (Juniors) and the Rodman Trophy (Seniors) were supplemented by the first Contest for the Hart Trophy.

This last has been presented by Mr. Edgar Hart, for competition between the Lancashire Aero Club and the Liverpool and District Aero Club, the Contest to take place at Woodford and Hooton alternately.

Teams of six pilots, three with under 50 hr. solo flying and three with over 50 hr. solo flying, represent each Club. Competitors have to land without engine from 1,000 ft. into a field 100 yd. long by 100 ft. wide, and pull up as close as possible to a line marking the centre of the field. In the Junior Division, the Instructor of the opposing Club flies with the competitor, but if his assistance is required the competitor is disqualified. Each team has to use the same machine throughout, and on this occasion both teams chose an "Avro Avian," with Cirrus Mark II engine.

After a well-fought and most sporting contest, the Lancashire Aero Club gained the Trophy, for the first time, by five ties to one, 164 pts. to 134 pts. Details are as follow:—

LANCASHIRE.			LIVERPOOL.		
Junior Division.					
Name.	Points (Max. 40).		Name.	Points (Max. 40).	
Bailey	31	beat	Salter	(undershot)	
Hallam	22	"	Louides	19	
Collinge	(undershot)	lost to	Oversby	20	
	53			39	
Senior Division.					
Goodfellow ..	34	beat	Levitt	27	
Mills	37	"	Grenfell	35	
Lacayo	40	"	Thornton	33	
	111			95	

Total points:—Lancashire, 164; Liverpool, 134.

The standard of flying throughout was very high, and reflected great credit on the Instructors concerned. Our only regret is that one or two people, who have seen fit to criticise the standard of flying and instruction in the Light Aeroplane Clubs, were not present, so that they could have been made to recant their criticisms.

In the Club Contest for the Pemberton Trophy, pupils had to land over a tape, 5 ft. high, into a field 150 yd. long. Mr. Lister was the winner, with 15 pts. out of a maximum of 30, closely followed by Mr. Crosthwaite, with 14½ pts.

For the Rodman Trophy, competitors had to land as before, but between two tapes, one 5 ft. and one 20 ft. high. For the first time since this Contest was inaugurated the percentage of failures was higher than the successes.

A very light wind, coupled with a downhill run, caused no less than four of the competitors to cut things too fine and to touch the lower tape with their wheels as they came through. Mr. Goodfellow was the winner for the fourth consecutive time.

In conclusion, we should like to express our gratitude to Sqd. Ldr. Williamson, R.A.F., who came over from Sealand to act as Chief Judge, to all the officials who carried through the organisation so smoothly, and to the Liverpool Club and their team for flying over on a distinctly murky autumn afternoon and for their fine sportsmanship and spirit throughout the Contest.

Another very fine Trophy has been presented by Mr. Edgar Hart for a Landing Competition on similar lines, but on a maximum percentage basis between the Lancashire Aero Club and all other Clubs who care to accept the challenge. The first Contest (against the Hampshire Club at Hamble) has been fixed for October 10, and the Secretary of the Club will be very glad to hear from any other Clubs willing to compete on a "home-and-away" basis, with a view to fixing up dates.

AN OLD FRIEND IN A NEW GUISE.—The "Elevator," edited by Alan Goodfellow and James Hembrow, is the Official Organ (Vox Humana) of the Lancashire Aero Club. Its style is inimitable, and for nearly six years it has been a valuable tonic to all those in aviation who have felt downcast and overcome with the "terrible fight for existence, which has been our lot since the end of the war" (to quote a Communist leader who evidently has not taken his "Elevator" regularly).

During these years it has been duplicated by the Smith Premier Typewriter Co., Ltd., and a very good job they have made of it, but now the Club feels that the time has come to give their "organ" the dignity of a properly printed publication. The result is admirable, and those responsible should be congratulated on their production. As in the past, its verse stands in a class of its own, while the use of better quality paper has made possible the inclusion of illustrations which, together with an increase in the number of editorial pages, make the "Elevator" a paper none should be without if they aspire to being considered well-read aviators.

THE CIRCUIT OF EUROPE, 1932

THE Aero Club of Germany reports that the regulations which are to govern the International Light Plane Competition to be held towards the end of July next year have now been drawn up. As the German Light Plane Competition held this year (see FLIGHT of August 21 and 28) was in the main a success, the regulations for next year's International Competition will follow much the same lines.

The Circuit of Europe, which will be one of some 4,500 miles, will be preceded by a number of technical tests, such as take-off over an obstacle 8 m. high, landing over a similar obstacle, and so forth. These tests will be similar to those demanded in the competition last year, and the test for minimum speed included in the recent German competition will also be used next year. Points will be awarded for certain practical qualities—comfort, ease of engine starting, rapid wing-folding, etc.

In the actual Circuit of Europe, reliability will be the first consideration, and the greater portion of the course will be flown at cruising speed.

In order to introduce the racing element and also to encourage high-top speed, a novel scheme is to be tried out next year. This will consist in making the last short stage of the Circuit of Europe, some 200 miles in length, a speed race pure and simple. Over this last stage the machines will fly "all-out," and speed will be the only quality which counts on this stage.

It is expected that there will be a very large number of competitors, and the course will be so planned as to pass over as many European countries as possible.

Entries will be received until about December 15, but the exact date will be published later. As soon as the regulations are available, a summary of them will be published in FLIGHT.

Barnard's Air Circus—Final Performance!

CAPT. C. D. BARNARD'S Air Circus, which during the past summer has done so much to arouse interest in aviation in the principal towns in England, Scotland and Wales, will give its final display for the season at the London Air Park, Hanworth, next Sunday afternoon. During their tour of 6½ months, Capt. Barnard and his fellow pilots have visited 118 towns in 50 different counties, and have given 370 performances. More than a million people have witnessed the displays. In many districts visited the public have been given the chance of seeing and taking flights in modern aircraft for the first time. Approximately 40,000 people have been given flights. Flying in formation, the six Circus machines will arrive at Hanworth next Sunday at 3 p.m. The Circus has increased considerably in size and interest since the tour began last April. It now consists of Capt. Barnard's famous "Spider," a "Sports Avian," a "Spartan," a "Desoutter," a Potez "Ladybird," and an "Autogiro." The events in the final display will be based upon the regular programme which has been performed once or twice every day, but on this occasion it will be supplemented by a number of extra machines, including a formation of three "Avians," and probably a second "Autogiro." Included in the programme will be exhibitions of aerobatics and crazy flying, the *Daily Mail* Aviation Lesson, demonstrations by the "Autogiro," a parachute descent by Mr. John Trantum, a display of aerial marksmanship and daylight fireworks, and other events which fill a programme of 2½ hours.

The Spartan Air Circus

IN FLIGHT last week there was an announcement of the formation of a new company, Skywork, Ltd., the directors of which were Mr. John Trantum and Mr. Oscar Garden. There has been much speculation as to what this company was going to do, and now we are able to make an authoritative statement about their projects. The company will take out to South Africa in the near future "The Spartan Air Circus." This is formed of three Spartan three-seaters, with Hermes II engines, and a

Desoutter, also with a Hermes II. The pilots will be Messrs Oscar Garden, E. D. Ayre, C. E. F. Reilly, J. King and E. D. Cummings, while Mr. Trantum will give demonstrations with an Irvin Air Chute. Messrs. Ayre and Garden are leaving on Friday, October 9, and the rest, including Mr. Groves, the mechanic, will follow about October 20. The programme will include a tour lasting about six months, and a route covering some 64 towns has already been laid out with the intention of starting from Cape Town and working round the coast. Great help has been obtained from the *Cape Times* and the *Cape Argus*, so that with ample publicity there is every chance of the tour being a success.

A Case for Air Ministry Action

ON September 30, Major Christopher Draper celebrated his return to aviation by hiring a "Puss Moth" and flying twice under the Tower Bridge and once under Westminster Bridge. He is alleged to have said that he was out of a job, that he had only flown once during the last ten years and wished to show that he had not forgotten how to fly. Surely a very selfish and inconsiderate way of doing so. Major Draper should realise that flying has finished being the amusement of somewhat hare-brained youngsters, which it was when he earned his name as the "Mad Major." We do not wish to belittle, in any way whatsoever, the very fine work he did during the war, but in justice to the coming generation of pilots he ought to consider the feelings of the crowd what watched him fly under these bridges. "Another of them mad pilots," we can imagine, was the general verdict. Not very helpful, is it, at a time when we are all trying our best to make the public see that flying is an ordinary and everyday means of transport? Breaking the Air Navigation Directions should be an offence to be dealt with severely and promptly for the good of all concerned.

Director of New Zealand Air Services.

WING-COM. GRANT DALTON is relinquishing the directorship of the New Zealand air services on completion of his term of office. He will be succeeded by Sqd. Ldr. T. M. Wilkes.

GLIDING

THE INTERNATIONAL GLIDING COMMISSION

THE International Commission for the Study of Motorless Flight met for their first general meeting in London last Thursday, October 1. The opening meeting was held at the headquarters of the Royal Aeronautical Society, and was opened by Lord Amulree, Secretary of State for Air.

LORD AMULREE, in his introductory speech, told the assembly that the aim of the Commission was to secure international co-operation in scientific, technical, aeronautical and administrative questions which would ensure the better progress and greater mutual benefit of those in the movement. He believed, he added, that gliding made a very definite contribution to the general progress of aviation and certain branches of technical research, and that it would help to popularise flying. In conclusion, he hoped that the deliberations of the Commission would lead to a strengthening of the bonds of international friendship which were already so strong in the aviation world.

Later a luncheon was given in honour of the delegates at the Comedy Restaurant, Panton Street, S.W., at which Lt. Col. Shelmerdine, the Director of Civil Aviation and President of the British Gliding Association, presided.

COL. SHELMERDINE proposed the toast of the Commission, and, in doing so, he said that we in this country owed a debt of gratitude to Dr. Georgii and all his compatriots for the immense amount of help which they gave us when we were resuscitating the gliding movement in this country two years ago. We had had, he said, no assistance from the Government, and apart from the munificent gift of Lord Wakefield, we had had to stand on our own feet. Gliding, Col. Shelmerdine said, was of great service to the technical and scientific side of aviation, and also of value in the training of pilots for motor-driven aircraft, as he felt certain that the time of their training could materially be reduced if they had first had gliding experience. In conclusion, Col. Shelmerdine asked everyone to drink to the health of the delegates, who included representatives from Belgium, Denmark, Italy, France, Germany, Greece, Holland, Hungary, the U.S.A. and Great Britain.

COL. THE MASTER OF SEMPILL, in supporting the toast, said that this was the first general meeting of the Commission, and that there were now 20 countries actively interested in the gliding movement. To emphasise the strength which Germany had given to the whole science of



A PRÜFLING: Mr. Gibbons of the London Gliding Club manages a long flight in the Club's Prüfling in spite of the light wind. (FLIGHT Photo.)

motorless flight, Col. Sempill pointed out that of the 500 or so "C" licences which had been issued for soaring pilots some 450 were for Germans.

DR. GEORGII, of Germany, the President of the Commission, replied first in excellent English and then later in German. He expressed his thanks for the welcome the delegates had received and remembered with pleasure the last time he had come over, about 1½ years ago, when he had inspected sites in the Chiltern Hills for the B.G.A. A great advance had now been made, he said, and he hoped that it would be borne in mind that the real reason of the Commission's deliberations was to further the practical and flying side of gliding. It was therefore with great pleasure



OUR VISITORS: A group including some of our foreign visitors at Balsdean. (L. to R.) Mr. Ashwell Cooke, of the London Gliding Club; Major Massaux (Belgium); Mr. W. Von Hemert (Holland); Herr Helbig (Germany); Herr Hirth (Germany); Mr. Lawrence Wingfield; Dr. Georgii (President of the Commission), and Mrs. Lawrence Wingfield. Standing on the extreme right is Mr. Waplington, the hard working Secretary of the B.G.A. (FLIGHT Photo.)

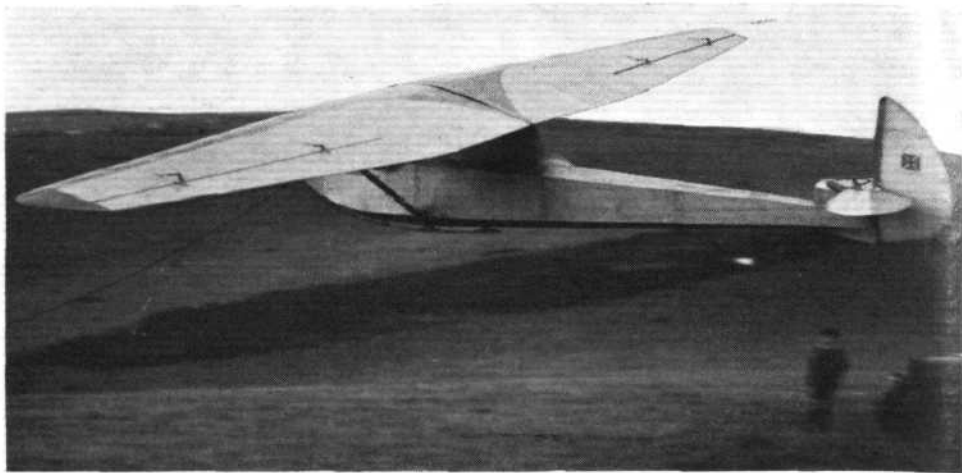
that they would be going to Balsdean the following week-end. Finally, Dr. Georgii said that it was the wish of everyone that the competitions would be a great success. M. Massenet, of France, then translated the German part of Dr. Georgii's speech into French.

The Week-end on the Downs

Such a meeting as this Gliding one is largely dependent on the weather for its success, and therefore no one would gamble on its success in England (except, perhaps, Lloyd's, and then only at very high rates!). Saturday was not so bad, except that the wind was far too gentle for proper soaring on such a site. Balsdean is up on the Downs above Rottingdean, and surrounded by a series of hills facing in various directions; the result is that almost any wind direction leaves part of the site blanketed or subject to the down draughts caused by the neighbouring hills. There is one long trough which is admirable for training glides, but unfortunately the wind was across this on Saturday. On Sunday, however, conditions improved, and the wind was sufficiently up this trough to make some very excellent glides possible. All the more efficient machines were taken several miles away to the N.E., where the hills were higher and formed a ridge from which it was hoped that true soaring flights would be possible. These hopes were, unfortunately, not entirely fulfilled, although a fair number of extended flights were made, and after an hour or so a sea mist came in, killing the wind and cutting down the visibility to about five yards.

The interest raised in the neighbourhood by the meeting was very large indeed, and the cars which ploughed up the narrow lane to the site, both on Saturday and Sunday, must have numbered several hundreds. Even when there is not much to be seen, or for that matter understood, of what is going on, a meeting like this has its charm, and no one could fail to benefit from a day high up in the South Downs. The really wise, old hands at the game who had experience of such meetings, brought their caravans with them. There were several of these scattered about the site, in all shapes and sizes, ranging from "Rice" folding ones up to palatial "Eccles" ones with room for four or more people. Col. Sempill was there with a large square-ended type, and this "home from home" was made the headquarters for the Commission during their visit. Such a base brings all the comforts of one's own home (cynics please refrain from saying the obvious) to the meeting, and the most excellent lunch which emanated from this particular caravan easily beat what we usually expect from hotels when motoring.

Now for the flying itself. To have followed exactly what was going on, what machines were flying in what competition, and to have learnt anything of the results one would have had to sit on the step of the broadcasting van from which such hard working souls as Mr. Gordon England, Col. Sempill and Mr. Yorke Bramble announced continuously. Like most people, however, we were far too interested in the various machines and what they were doing after being shot into space to stay near the van, with the result that



A ONE MAN EFFORT: The "Crested Wren" designed and built by Corporal Manual of Hawkinge. It is a beautiful piece of work. (FLIGHT Photo.)

we had very little idea of what competition each machine was flying in.

Saturday was disappointing, for the very light wind did not allow of anything in the way of soaring. There was, however, quite a lot to be seen, and several interesting machines.

There were, of course, many of the usual types, such as Zöglings, Prüfings and R.F.D. primary training gliders. Among the more efficient there was a fine piece of work by Corporal Manual, called the "Crested Wren." This was a single-strutted monoplane, not at all unlike a small "Professor"; it is entirely home made and a one-man job, though it looks like the product of some cabinet maker's works. The "British Falcon" is another excellent example of the sort of work our men can produce when required. This glider is built to the German "Falke" drawings in the works of Mr. Slingsby, of Scarborough, and is every bit as good, if not better than its foreign prototypes. The "Tern" has already been described at length in FLIGHT, and on Sunday it performed quite creditably. Herr Magersuppe took it up late in the afternoon, and by diving considerably directly after being launched he was able to gain sufficient flying speed to carry him on a zoom up and over the opposite side of the hill; he then glided out down wind straight across the valley in an effort to gain the distance prize. Whether or not he was successful remains to be seen, as he was rapidly lost in the mist and no one could see where he landed.

A little later a member of the London Gliding Club followed suit in the Club's "Hols der Teufel." He did not, however, start from the windward side of the hill as Herr Magersuppe had done, but elected to go straight off the leeward side and down the valley. Such a start meant that the initial downwash from the hill lost him a considerable amount of height, and from the top it did not look as if he would reach the distance the "Tern" had done.

Shortly after this flight the sea mist came down and decreased the visibility to some ten yards in places. Many people who had come to this hill by devious and tortuous routes therefore started back while there was still sufficient light to see something of the route. Such grass tracks are, however, hard to follow in a mist, and many fell by



SIMILARITY IN TYPES: On the left a beginner's soarer, the Hols der Teufel with a member of the London Gliding Club just taking off. Herr Hirth soared in this machine during the meeting. This machine was designed in 1923 by Herr Lippisch, the designer of Herr Kronfeld's "Wien." On the right, a cleaned-up primary where the pilot is to a certain extent enclosed in a nacelle, and bearing a family resemblance to the "Hols der Teufel." (FLIGHT Photo.)

the wayside, eventually finding their way to the coast road from Newhaven to Brighton by "trial and error."

In the meantime the primary gliders had been doing good work on the hill further to S.W. of this one, and quite a large crowd of spectators watched them.

Considering the weather, the number of people who came up to the site was really surprising, and the B.G.A. can pride itself on the fact that this, their Second International Competition Meeting, was a far greater success than many thought it would be.

One of the most encouraging aspects of the meeting was the amount of support which Mr. Lowe-Wylde got for his passenger flights. Both he and Mrs. Green, the latter with her hard-driven Bentley, worked like blacks the whole of Saturday afternoon, taking up people in the two-seater B.A.C. VII for auto-towed flights. On Sunday, Mr. Lowe-Wylde tried out his latest production, a cheaper form of soaring glider, which has been built so that club members may assemble it themselves. Conditions were, of course, bad, but the machine promised well.

The results so far to hand are as follow:—

PRIMARY GLIDERS.—SPOT LANDING COMPETITION.—1, T. H. Palmer, Essex Club (R.F.D. Glider), landed on the spot; 2, O. Warren, Southern Soarers (R.F.D. Glider), 11½ yd. wide; 3, N. Cave, Southern Soarers (R.F.D. Glider), 13 yd. wide.

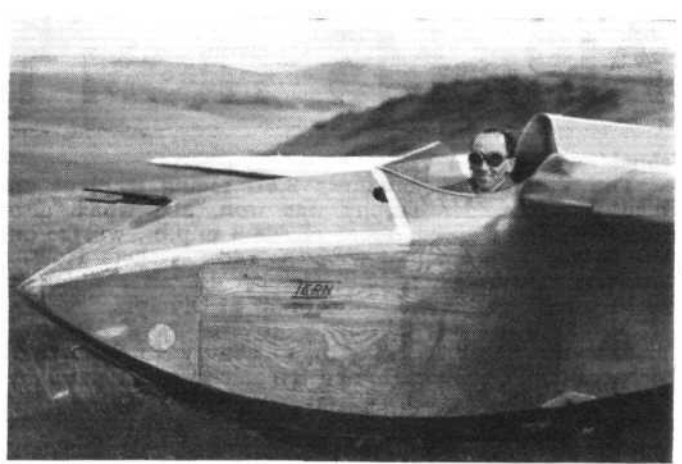
DISTANCE FLIGHT.—1, T. H. Palmer, Essex Club (R.F.D. Glider), 660 yd.; 2, C. Palmer, Southern Soarers (R.F.D. Glider), 630 yd.

DURATION FLIGHT.—1, L. R. Brown, Southdown Club (R.F.D. Glider), 1 min. 35 sec.; 2, T. H. Palmer, Essex Club (R.F.D. Glider), 1 min. 12 sec.; 3, N. Cave, Southern Soarers (R.F.D. Glider), 1 min. 8 sec.

CLUB AGGREGATE.—1, Southern Soarers, 8 min. 35 sec.; 2, Essex Club, 4 min. 26 sec.

INTERMEDIATE GLIDERS.—DURATION AND SPOT LANDING.—1, L. C. Williams, London Club (Hols der Teufel), 6 min. 56 sec., 120 yd. wide; 2, G. Humby, London Club (Hols der Teufel), 1 min. 13 sec., 140 yd. wide; 3, M. Manton, London Club, (Prüfling), 1 min. 2 sec., 145 yd. wide.

DISTANCE FLIGHT.—1, L. C. Williams, London Club (Hols der Teufel), 600 yd.; 2, D. Morland, London Club



A BRITISH SAILPLANE: Major Petre about to take off the "Tern." This full cantilever sailplane has an excellent view and has already made some record flights.

(FLIGHT Photo.)

(Prüfling), 400 yd.; 3, A. B. Gibbons, London Club (Prüfling), 375 yd.

ADVANCED MACHINES.—RIG AND FLY CONTEST.—Maj. H. Petre (The Tern sailplane), rigged in 3 min. 37 sec. and flown for 1 min. 15 sec.

DISTANCE FLIGHT FOR THE DE HAVILLAND CUP.—1, G. M. Buxton, London Club (Professor), 500 yd.; 2, Maj. Petre (The Tern), 335 yd.; 3, L. C. Williams, London Club (Hols der Teufel), 60 yd.

FIRST MACHINE IN THE AIR.—E. K. Robbins, Southern Soarers (R.F.D. fitted with Nacelle fuselage).

WAKEFIELD TROPHY FOR CROSS-COUNTRY FLIGHT.—1, G. M. Buxton, London Club (Professor), distance 3 miles; 2, Herr Magersuppe (The Tern); 3, G. Humby, London Club (Hols der Teufel).

FIGURE OF EIGHT CONTEST.—Maj. Petre, London Club (Tern), one complete figure, time 1 min. 2 sec.



IN MEMORIAM, R.101: On October 5 last, the villagers of Allone, near Beauvais, Northern France, where the British airship R.101 crashed in flames on Sunday, October 5, last year, laid flowers on the spot. There were present Group Captain Bone, the British Air Attaché in Paris, representing the Embassy, and Air Commodore Fellows, who came from London to represent the Air Ministry. British and French aeroplanes flew overhead and dropped flowers.

AIRISMS FROM THE FOUR WINDS

Schneider Winner on View

THE VICKERS SUPERMARINE S.6B racing seaplane on which the Schneider Trophy was won, and which also holds the world's speed record of 408.8 m.p.h., will be on view at the showroom of Vickers, Ltd., Vickers House, Broadway, Westminster, until October 12, after which it will be transferred to the Motor Show at Olympia.

H.M. the King has personally directed Lord Amulree, the Secretary of State for Air, to convey to Sqd. Ldr. Orlebar, Flt. Lt. Stainforth, and the officers and men of the High-Speed Flight, his warm congratulations on the brilliant performance whereby a world's speed record was established on the evening of September 29. In so doing His Majesty intimated his great satisfaction with the high standard of efficiency prevailing among all ranks of the Royal Air Force and in the technical departments of the Air Ministry, as evidenced both on the present occasion as well as in the recent contest for the Schneider Trophy. The King has further directed that his congratulations shall be conveyed to the manufacturers and designers of the machine and engine, whose efforts have contributed so largely to these outstanding British successes.

Kingsford Smith Fails

AIR COMMODORE KINGSFORD SMITH has failed in his attempt to beat Mr. A. J. Mollison's record flight from Australia to England. As reported last week, Kingsford Smith left Aleppo in his Avian on September 30—at 4 a.m., not p.m.!—hoping to fly non-stop to Rome, where he was due the same evening. He did not turn up, however, and some anxiety was at first felt for his safety, for it was not until the following night that news came to hand that he was forced to land, owing to indisposition, at Milas, near Smyrna. Here he was held up by the Turkish police, and was unable to proceed until October 2, when he flew on to Athens. He left Athens at 10.15 a.m., October 6, and reached Rome at 5 p.m. Air Commodore Kingsford Smith set out from Rome on the final stage of his flight, at 6.15 a.m. on October 7, and landed at Heston Air Port, England, at 5.40 p.m., thus finishing his flight in spite of serious delays and set-backs due to illness and misplaced officialdom.

Japan-America Non-Stop

THE first non-stop flight across the Pacific from Japan to the United States has been accomplished by two American airmen—Clyde Pangborn and Hugh Herndon—who flew from New York to Tokio last July-August in a Bellanca monoplane (Pratt & Whitney "Wasp"). They left Sabushiro Beach, Japan, early on Sunday morning, October 4, and, passing over the Aleutian Islands later, landed at Wenatchee, Washington State, early the following morning, having covered 4,465 miles in 41 hr. 31 min. Having dropped their landing gear on leaving Japan, they had to land on the fuselage of the machine, which, by skilful piloting, was accomplished with little, if any, damage to man or machine. On landing, they were handed a cheque for £5,000 by a representative of the Japanese newspaper *Asahi*, the prize offered by this paper for the first non-stop flight from Japan to America.

The Lindberghs have a Mishap

COLONEL AND MRS. LINDBERGH have been continuing their flood-relief flights over the flooded areas of the Yangtse Kiang, and on October 2 met with a slight mishap. They were about to take off from the Yangtse Kiang in their Lockheed "Sirius" seaplane on a survey flight to the Tunting Lake, when the machine capsized. Both were thrown into the river, but were rescued—little the worse for their ducking—by a boat from the aircraft carrier *Hermes*. The seaplane was hoisted on to the deck of the latter to be taken to Shanghai for repairs. The *Hermes*, by the way, is also assisting in the flood relief work, although a later message says that the Wuhan authorities have forbidden the ascent of British machines!

Junkers Altitude Machine Tested

THE special aeroplane built by the Junkers Company for studying flight at very great altitudes was tested at Dessau on October 2. The machine, which will be known as the Ju 49, and is equipped with a Junkers L.88 engine of 800 h.p., is still far from being ready as far as the special altitude equipment is concerned, and the first flight was made merely to test the machine as an ordinary aeroplane. The installation of the special superchargers, and the full use of an airtight compartment for the pilot, will

proceed step by step, and it is expected to take several months over the preliminary development and test work. After the first test flight the pilot, Herr Hoppe, expressed himself satisfied with the way the machine handled.

Irishmen Plan Atlantic Flight

CAPTAIN J. P. SAUL, who navigated the *Southern Cross* on her flight across the Atlantic last year, told our Irish representative that he and Col. J. C. Fitzmaurice, who crossed the Atlantic in the Junkers monoplane *Bremen* in 1928, were planning a double flight across the Atlantic in the spring of 1932. The machine to be used is a Sikorsky amphibian S.38, two Pratt and Whitney "Wasps," and will be fitted with tanks to carry 1,100 gallons of petrol (about 880 imperial gallons), sufficient for 26 hours' flying. Arrangements are being made to carry a payload of about 500 lb. of mail at one and a-half dollars a letter. The flight will start from Roosevelt Field, New York, and after a refuelling halt at Harbour Grace the undercarriage will be dropped. It is hoped to land the machine in Dublin Bay, after which another undercarriage will be fitted and a "goodwill" tour of the capitals of Europe made, before the Sikorsky is flown back across the South Atlantic to Pernambuco and up the West Coast of America to San Francisco. Col. Fitzmaurice is at present in America, but he is expected to visit Europe early next month to complete the details for his tour.

A German Amalgamation

Two well-known German aircraft firms have been in negotiation for some time concerning a possible amalgamation, and it is now announced that the fusion has been completed. The firms are the Focke-Wulf Flugzeugbau, of Bremen, and the Albatros Flugzeugwerke, of Berlin-Johannisthal. Under the amalgamation the Focke-Wulf company takes over the Albatros company, and at the same time increases its capital from 200,000 mk. to 280,000 mk. The new company will be under the direction of Dr. Huth and Generalkonsul Dr. Roselius.

Development of Free State Military Aviation

THE Department of Defence of the Irish Free State has issued a notice to commissioned ranks stating that officers desiring to learn flying can be transferred from their units to the Army Air Corps at Baldonnel for that purpose, reverting to their former units after training. "Refresher" courses being given when necessary. It has been understood in well-informed circles in Dublin, writes our correspondent, for some time past that this offer was to be made to officers and the Army Air Corps has steadily been equipping itself with army co-operation machines. It will be recalled that shortly after the formation of the Free State the Air Corps put in some useful work in rounding up armed bands, who disapproved of the Constitution, in conjunction with the ground forces.

The Amsterdam-Batavia Air Line

THE September number of that very excellent Dutch journal *Het Vliegveld* is devoted almost entirely to the subject of the Amsterdam-Batavia air line. The Dutch are justly proud of the enterprise and determination which has made the inauguration of this important air line possible, and their pride and faith in the future are reflected in this number of *Het Vliegveld*, which contains articles by such prominent men as A. Plesman, Managing Director of the K.L.M., S. de Graaff, Minister for the Colonies, P. J. Reymer, Minister for Waterways, M. H. Damme, Director-General of Posts and Telegraphs, General C. J. Snijders, Holland's wonderful veteran soldier, B. Stephan, Managing Director of the Dutch Fokker company, H. Rendorp, Managing Director of the K.N.I.L.M., and Van den Berch van Heemstede, Chairman of the I.A.T.A. The Editor of *Het Vliegveld*, Henri Hegener, contributes an article, beautifully illustrated, on the various pioneer flights which preceded the establishment of a regular air route between Holland and her colonies in the East Indies. The publication is one of exceptional interest to anyone able to read Dutch, even if only imperfectly.

Another K.L.G. Success—on Land

THE recent record attained by Mr. G. E. T. Eyston, driving an M.G. "Midget" car, when a distance of 101 miles was covered in one hour, was made on K.L.G. plugs—a remarkable achievement.

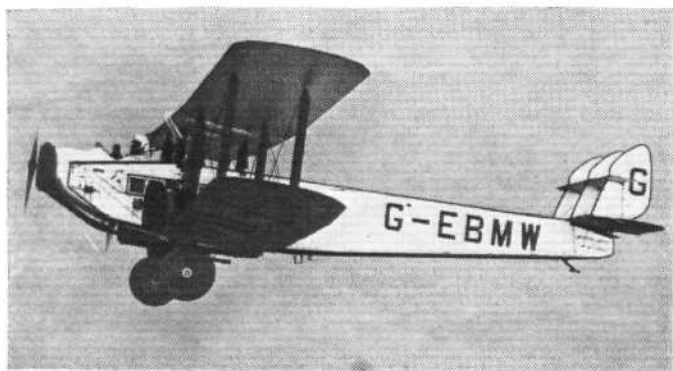
AIR TRANSPORT

THE AIR FLEET OF IMPERIAL AIRWAYS, LTD.

(Concluded from page 986.)

THE de Havilland 66, or "Hercules," appeared during 1926. These machines, which were to be used on the Middle East route, had triple 425-h.p. Bristol "Jupiter VI" motors and a maximum speed of 130 m.p.h. Aircraft of this type to be delivered during 1926 were G-EBMW *City of Cairo*, G-EBMX *City of Delhi* and G-EBMY *City of Baghdad*.

Also, during the year, the Vickers "Vanguard," twin 650-h.p. Rolls-Royce "Condors," was loaned by the Air Ministry to Imperial Airways for commercial test work, and was operated during the summer months principally on the Paris route. The Supermarine "Swan," as well,



THE DE HAVILLAND 66, "HERCULES": A three-engined (Bristol "Jupiter VI") biplane used on the Middle-East route. (FLIGHT Photo.)

was loaned in a like manner. This was a twin-motored (Napier "Lions") flying-boat, carried ten passengers and two crew, and was the forerunner of the now world-famous "Southampton." The de Havilland 54, or "Highclere," Rolls-Royce "Condor," had also been loaned by the Air Ministry for testing during the latter part of 1926, but was, unfortunately, damaged by the collapse, through snow, of the hangar in which she was housed, and was never actually used on Imperial Airways' services.

Towards the close of 1926 the motors of the *City of New York* were changed from "Jaguar" to "Jupiter" for probative reasons.



THE SUPERMARINE "SWAN": A twin-engined ("Napier-Lion") flying-boat which was loaned by the Air Ministry for test.

Thus at the end of that year Imperial Airways had a total of 17 aircraft, as well as those on loan from the Air Ministry.

During the whole of 1927 there occurred no accidents necessitating write-offs to any aircraft, whilst the following machines were acquired:—G-EBOZ *City of Wellington*, a further unit of the "Argosy" type, and two more "Hercules," G-EBMZ *City of Jerusalem* and G-EBNA *City of Teheran*. The two latter machines were flown out East to Cairo to join the others of the same type for operation on the Middle East route.

The following year was not quite so fortunate, three machines being lost in crashes. These were G-EBBG, the old W8.B, at Abbeville; G-EBLB, the "Vulcan," at Purley, whilst on a test-flight; and G-EBKZ, the de H. 50a, at Plymouth.

The same year saw the introduction of the tri-motored Short "Calcutta," these aircraft being the first flying-boats ordered by Imperial Airways, Ltd. They were a considerable improvement on any civil water-craft hitherto constructed in this country, and were intended for use on the Mediterranean section of the India route. Accommodation was provided for 15 passengers and three crew, with a maximum speed of 121 m.p.h. Two examples were produced during 1928—G-EBVG *City of Alexandria* and G-EBVH *City of Athens*.



THE SHORT "CALCUTTA": A three-engined flying-boat introduced in 1928 for use on the Mediterranean section of the England-India route. (FLIGHT Photo.)

An improved version of the "Argosy" was introduced for the summer traffic during 1929. These machines were fitted with the new "Jaguar VIa" motors of 420 h.p. each, which gave them a rather better performance than the older model, and were four in number:—G-AAACH *City of Edinburgh*, G-AAACI *City of Liverpool*, G-AAACJ *City of Manchester* and G-AAAEJ *City of Coventry*. During the same period a further example of the "Hercules" was added to the fleet (G-AAJH *City of Karachi*), and also another "Calcutta" (G-AAADN *City of Rome*), the latter machine, unfortunately, being lost in an accident in the Gulf of Genoa later in the year.

The first monoplane to be owned by Imperial Airways, Ltd., was purchased towards the close of 1929. This was the "Westland IV" G-AAGW. Fitted with triple 105-h.p. "Cirrus-Hermes" motors this machine carried four passengers and two crew at a top speed at 110 m.p.h., and was attached to the Special Charter department.

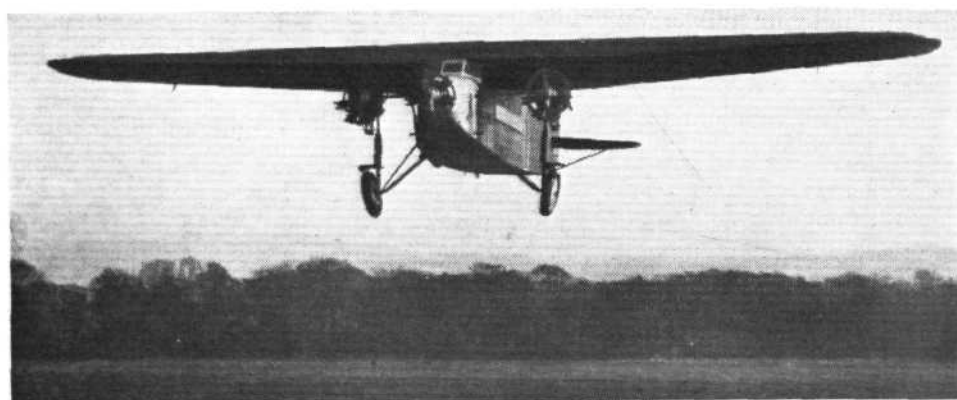
In addition to the "Calcutta" G-AAADN, two further aircraft were destroyed in accidents during 1929. Handley-Page W.10 G-EBMT was lost in the Channel and "Hercules" G-EBMZ was crashed at Jask. Also, the old W8.B, G-EBBH, was withdrawn from service as obsolete, as was the "Sea Eagle" G-EBGR; the "Hampstead" G-EBLE was sold; and the "Hamilton" G-EBIX was rebuilt as a twin-motored craft with the new Rolls-Royce "F" motors towards the close of the year.

This fleet, a total of 20, was augmented by four new aircraft during 1930, but one, the "Hamilton" G-EBIX, was written off the assets, being destroyed in an accident. The four new machines consisted of two further examples of the "Calcutta" type, being G-AASJ *City of Khartoum* and G-AATZ *City of Salonica*; also two more "Hercules," G-AARY *City of Basra* and G-ABCP *City of Jodhpur*. This latter machine had been purchased from West Australian Airways, Ltd. The three older model "Argosies" were refitted with the "Jaguar VIa" motors in place of the earlier "Mk IV" prior to being dispatched to Cairo for use on the Cairo-Khartoum section of the South African service.

The present year has seen many changes in the composition of the Imperial Air Fleet. Three new types have been introduced—foremost, perhaps, being the Handley-Page 42. These machines, which have recently been fully described in FLIGHT, are definitely among the world's largest land-planes. At the moment of writing five examples have



THE WESTLAND IV: A small three-engined monoplane first used in 1929 for special charter work. (FLIGHT Photo.)



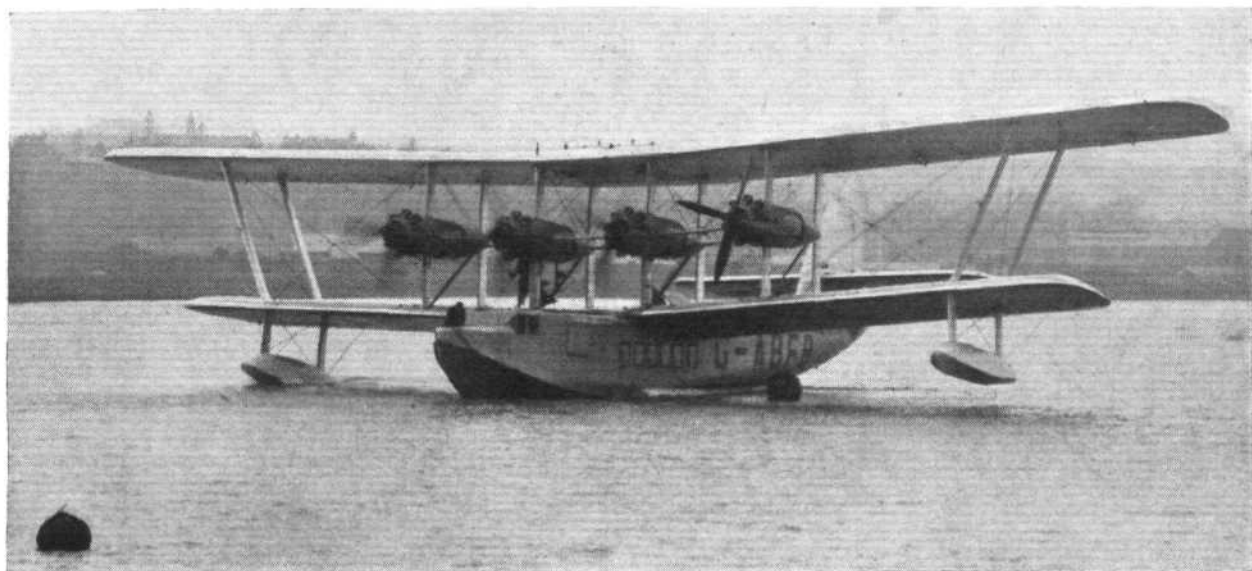
THE AVRO 10: Another type of three-engined monoplane, added to the fleet in 1931. (FLIGHT Photo.)

been delivered—these being G-AAGX *Hannibal*; G-AAUC *Horsa*; G-AAUD *Hanno*; G-AAUE *Hadrian*, and G-AAXC *Heracles*, all, with the exception of the last, of the Eastern model, i.e., for operation on the Cairo-Khartoum section of the India route. The "Eastern" version has accommodation for 18 passengers only, the remainder of the cabin space being allotted to mails and freight. The four other machines of the Handley-Page 42 type will be of the "Western" model, with accommodation for 38 passengers. These aircraft have been given the markings G-AAXC *Heracles* (already delivered), G-AAXD, G-AAXE and G-AAXF, and will be used on the European routes. Thus, when all aircraft of this type are delivered there will be a total of eight machines, four each of the "Eastern" and "Western" models, with a combined passenger accommodation of 224. With the exception of the cabin arrangement both models are absolutely identical.

The second new type introduced this year was the Short "Kent" flying-boat, which is a quadruple-motored version of the earlier tri-motored "Calcutta." These craft are fitted with the same motors as the Handley-Page 42's—555-h.p. Bristol "Jupiter" Mk X F.B.M.—are used on



THE HANDLEY PAGE 42 HANNIBAL: One of the latest additions to the Imperial Airways fleet—a four-engined, 42-seater biplane. (FLIGHT Photo.)



THE SHORT "KENT": A modern and improved version of the "Calcutta," powered with four Bristol "Jupiter" Mk. X F.B.M. engines. (FLIGHT Photo.)

the Genoa-Alexandria section of the India and Africa routes, and are three in number:—G-ABFA *Scipio*, G-ABFB *Sylvanus* and G-ABFC *Satyrus*.

Two machines of the Avro 10 type have been acquired by Imperial Airways, Ltd., this year. The Avro 10 is, of course, the British-built version of the world-famous Fokker F VII b-3m, of which type nearly one hundred are in daily use on regular airlines in all parts of the world. The machines operated by Imperial Airways are G-AASP *Achilles* and G-ABLU *Apollo*.

Also a further unit of the "Hercules" type has been acquired this year from West Australian Airways.

The three older "Argosies," which, as already stated, had been refitted with the new motors, were flown out to Cairo during the earlier part of the year. One of these machines, G-EBLO, has since been destroyed in an accident at Aswan, Egypt. Also, during April of this year, aircraft G-AACH *City of Edinburgh* was destroyed at Croydon during a practice flight.

The "Westland" machine G-AAGW has been converted to a "Wessex"—being refitted with triple 7-cylinder "Genet Major" motors.

The Imperial Air Fleet, therefore, at present consists of the Handley-Page W8.B G-EBBI, which is over nine years old; the D.H. 50 G-EBFP; the Handley-Page W10's G-EBMM and G-EBMR; "Argosies" G-EBLF,

G-AACI, G-AACJ, G-AAEJ and G-EBOZ, which has been renamed *City of Arundel*; "Hercules" G-EBMX, G-EBMY, G-EBNA, G-AAJH, G-AARY, G-ABCP (G-EBMW, which crashed last April at Timor Island, has now been written off the assets), and the machine recently bought from West Australian Airways; "Calcuttas" G-EBVG, G-AASJ, G-EBVH, renamed *City of Stonehaven*, and G-AATZ, renamed *City of Swanage*; the "Wessex" G-AAGW; the Handley-Page 42's G-AAGX, G-AAUC, G-AAUD, G-AAUE and G-AAXC; the Short "Kents" G-ABFA, G-ABFB and G-ABFC, and finally the Avro 10's G-AASP and G-ABLU, a total of 31 aircraft.

The Supermarine "Sea Eagle" G-EBGR is still registered as being owned by Imperial Airways, Ltd., but has not been used for several years, and is, in fact, for disposal.

For the sake of completeness, brief mention might be made of other machines at present on order for Imperial Airways, Ltd.

A fleet of quadruple-motored monoplanes are under construction by Messrs. Armstrong, Whitworth, of Coventry. These machines are to be fitted with 325-h.p. "Double Mongoose" motors. In addition, two experimental machines are on order from the Blackburn Aeroplane & Motor Co., of Brough. These aircraft will be fitted with triple "Lynx" motors, one being a monoplane and the other a biplane.

Civil Aviation in Czechoslovakia

For the current year the Czechoslovak Government is spending approximately 50 million crowns on civil aviation, compared with 36 millions in 1930. The State Air Lines get a subvention of 8.5 million crowns, the Cidna and the Czechoslovak Air Lines receive between them 13 millions; the Masaryk Air League and various flying clubs are subsidised to the extent of 3.5 millions; while the Ministry of Public Works has spent 9 millions on the purchase of new aeroplanes, and over 12 millions on the purchase of sites and construction of aerodromes. Despite the increase in the number of passengers and the amount of mail and freight carried, the receipts of the air companies are still far behind the expenditure.

A Siamese Air Line

FURTHER to the article on the Aerial Transport Co. of Siam, published in our issue of September 11, the following information on the subject, just received by the de Havilland Co. from their representatives in Siam, may be of interest:—

"Nai Buck Seng, General Traffic Agent of the Aerial Transport Company of Siam, Ltd., has returned to Bangkok from Korat after a flight of one thousand kilometres over the Aerial Transport Company route. Nai Buck Seng, who went North to open the local agencies of the company in Korat, Khonkaen, Udorn, Nongkhai and Nakon Pnom, says it was the most interesting trip of his life

"Everywhere the people hailed the advent of our airplanes as a sign of early relief from slow bullock cart transportation," he said. "We had two airplanes, one piloted by Major Luang Saen Boladheb and the other by Capt. Koen Chamroenpluk.

"The trip was made in a leisurely manner on two-thirds of the power of the motors, and the 515 kilometres stretch from Korat to Nakon Pnom was made in 3½ hours actual flying time. We stopped at Khonkaen and Udorn *en route*, where Major Saen made preparations for the beginning of the operation of the service next Monday. I opened the company's offices for business at Nakon Pnom, Udorn, Nongkhai, Khonkaen and Korat.

"The round trip of the two airplanes totalled 2,060 kilometres flown, and was made without trouble of any kind over the entire route and return."

Night Air Mail to Germany

THE Postmaster-General announces that, according to information just received from the Air Company, the departure of the night air service to Berlin will be advanced by one hour as from Monday, October 5. In consequence, the latest time of posting for air mail correspondence for Austria, Czechoslovakia, Denmark, Germany, Hungary, Norway, Poland and Sweden in the air mail letter box outside the General Post Office, London, for conveyance by the service will be 7.0 p.m. instead of 8.0 p.m. on and after that date. The latest time of posting will be correspondingly advanced elsewhere. This service will cease to operate after the night of October 15.

AIRPORT NEWS

VANCOUVER'S AIRPORT

THE first unit of the new municipal airport at Vancouver, B.C., was officially opened on July 22. The site occupies 469 acres on the south side of Sea Island, which is at the mouth of the north arm of the Fraser River, and provides ample space (240 acres) for the future development of this important air terminal. The airport, which provides facilities for both land and sea planes, was constructed at a cost of £120,000, contributed by the City of Vancouver.

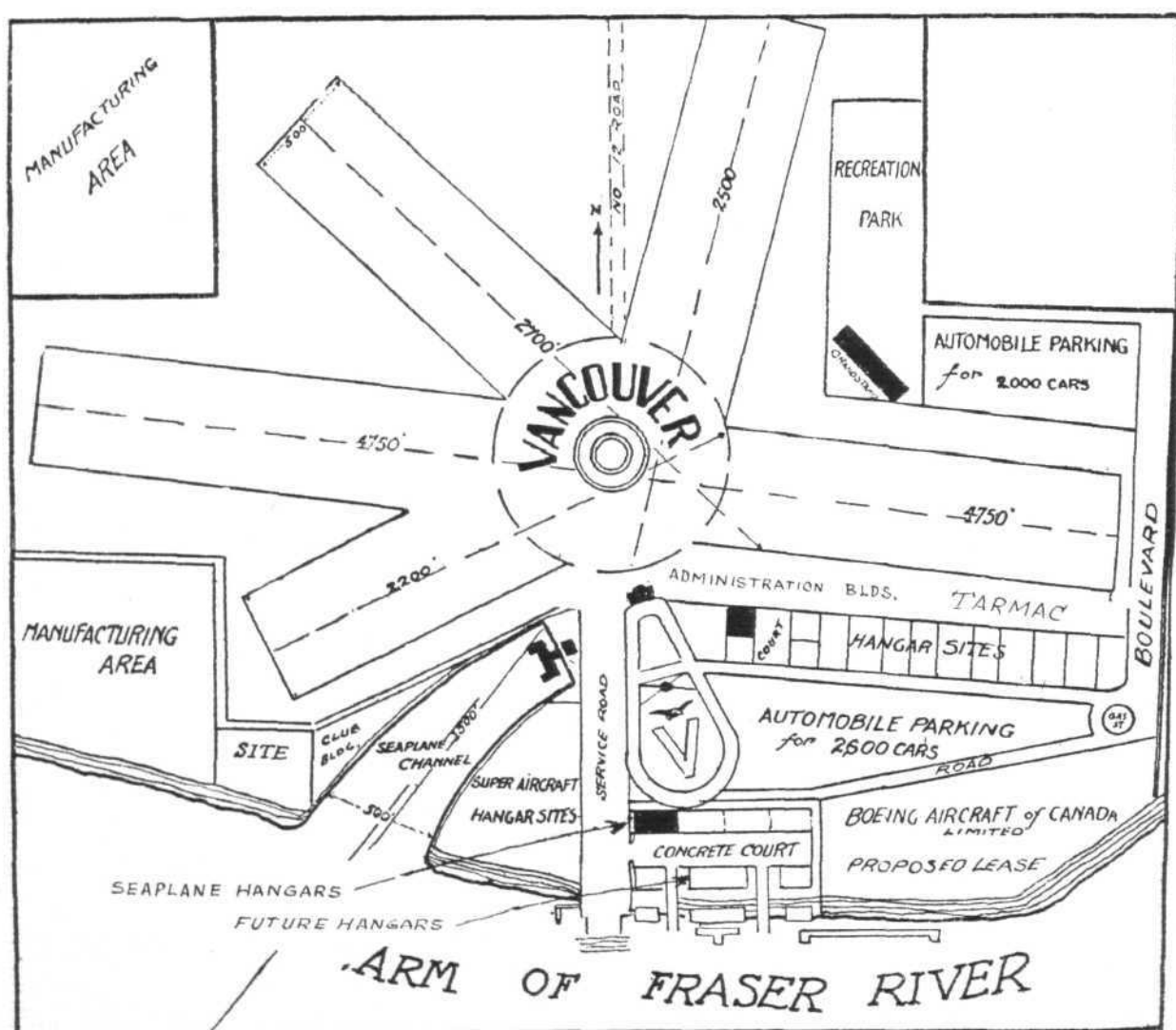
The present development, confined to the eastern end of the site, includes the administrative building, one landplane and one seaplane hangar, together with east-west and north-south runways. Two large parking areas for automobiles are provided for in the projected development, one of which will accommodate 2,000 and the other 2,600 cars.

The administration building is a two-storey structure, centrally located, and with a control tower commanding the entire port. Office space is allotted for airport officials and private operators, and also for post office, customs and immigration offices. Dining-room facilities have also been provided. A 200-ft. copy of the City's coat of arms, a large bird and a huge "V," laid out in ores of the province, will be embedded in concrete before the administration building, providing a striking landmark, visible for miles. The building is surrounded by lawns intersected by concrete approaches from the runways and hangars.

Space has been provided for six units of landplanes and

four units of seaplane hangars. Each of these units will consist of four hangars of 106 ft. by 84 ft., with doorways 100 ft. by 20 ft. At the present time only one landplane hangar and one seaplane hangar, each representing one-quarter of a unit, have been erected to take care of the early requirements of the port. These hangars are of the most modern construction. The roofs are of Lamella wood construction, allowing for the maximum air space. The doors, built in Vancouver by Western Steel Products, Ltd., are 100 ft. long by 20 ft. high. They are on rails, permitting the most facile handling. The bottom part of these doors up to 13 ft. is of steel, the remaining 7 ft. being of glass to permit proper natural lighting of the hangar interior. Concrete aprons surround the hangars. The main runway of the airport, sited east and west into the prevailing winds, is 2,350 ft. long by 500 ft. wide, the centre strip of 100 ft. being hard surfaced and the remaining width in grass. The cross runway is 1,300 ft. long by 500 ft. wide, 50 ft. being hard surfaced. The projected development provides for a main runway 4,750 ft. in length, a 2,500-ft. cross runway, and two others at an angle to the main runway, 2,200 and 2,700 ft. long, respectively. There are no high obstructions to the approaches on any side.

The seaplane port is in sheltered water at the mouth of the middle arm of the Fraser River. A channel, 1,300 ft. long by 500 ft. wide at the mouth and narrowing down to 325 ft., will be constructed, enabling the machines to taxi



Courtesy "Vancouver Daily Province."

Plan of Vancouver's Airport on Sea Island as it will appear when completed. At present development is confined to the east half—on the right of No. 12 road—and includes east-west and north-south main runways, two hangars (shown black) and administration building.

right up to the landing stage from where the customs office will be easily accessible.

Vancouver's new air terminal is said, even in its present stage of development, to rank with the finest on the Continent, and its situation is particularly favourable, offering no high obstructions to the approaches on any side. The location on Sea Island affords the best facilities in the vicinity for a combined land and water airport; lowest rainfall; most freedom from fog and smoke; freedom from obstructions to landings; easy forced landings; and low cost of construction and development.

The following cabled congratulations of His Royal Highness the Prince of Wales and of Lord Amulree, Secretary of State for Air, were read by the Hon. S. F. Tolmie, Premier of British Columbia, at the official opening ceremony of this airport:—

"The Prince of Wales has heard with interest of the

opening of the Vancouver airport, which is to take place to-day. His Royal Highness sends his congratulations and best wishes for the success of this enterprise, which will do much to advance civil aviation ends," read the message from the Prince.

Lord Amulree cabled: "I am glad to have this opportunity to congratulate the Mayor, City Council and citizens of Vancouver on the establishment of their airport. The enterprise displayed by Vancouver indicates how fully Canada appreciates the importance and value of air commerce to the future commercial and industrial development and closer union of the British Commonwealth of Nations. The prime necessity of air transportation is proper ground organisation, and in establishing this new and up-to-date airport Vancouver has set a splendid example to other cities and towns throughout the Empire, and one which I hope they will not be slow in following."

CROYDON

SUMMER has tried its best to fade out in a blaze of sunshine, and we have had a good share here this last week. It has helped to make up a little for the dreary months that have passed and for those that are in store.

There has been quite a number of "A" pilots qualifying for "B" licences during the week, including Man Mohan Singh, who will be remembered some time back for his attempt to fly to India.

Kingsford Smith has been expected daily, and arrangements had been made for an official reception, but it seems that ill luck has dogged him all the way, and there can be no chance of any record now. Personally, I think Mollison's record will take some beating; no doubt it can be done, but it will take a mighty effort on the part of whoever does it.

Several large parties from the British Association for the Advancement of Science visited the aerodrome on Tuesday and Wednesday, and were conducted round by Air Ministry officers from Croydon. Many of the members took joyrides in Imperial machines.

One of the most amusing entertainments ever seen here was witnessed on Wednesday, when the 12.00 service was due to leave for Paris. It is the duty of the stand-by pilots of Imperial Airways to see the machines off, and for this purpose they have been supplied with a green flag, which they have to wave to let the pilots know everything is clear and they can move off. On this particular day, Mr. Rogers was stand-by pilot. He is a great humorist at all times, but he surpassed himself on this occasion. At about 11.55 he appeared regaled in peaked cap, the commissionaire's bandolier, red and green flags, a whistle and a green lamp. He would have outdone the best guard on any railway. His antics were a revelation, and the passengers and their friends were highly amused. Needless

to relate, the staff were highly elated and turned out *en masse* to watch the fun. The final whistle would have made any football referee envious, as it must have been heard nearly in Croydon itself. What Rogers' idea was seems fairly obvious. The stand-by pilots regard this flag business as an unnecessary procedure, considering that it verges on the childish side, and when one does consider the matter, it does appear a little ridiculous. After all, the Air Ministry people control the traffic, and a machine standing below the control tower has to get their permission to move off; therefore this flag business does rather look superfluous.

This week-end sees the finish of the summer services, and Monday the commencement of winter services. This means an ease down for everybody, and it is needed, too. The pace everyone has to go in the summer is terrific, and one can perspire watching it without doing much oneself. The winter comes in many ways as a blessing to everyone in commercial aviation, as it means a few months' respite, or at least not so many hours.

This good weather emphasises the joy of the joyriding firms. They are all doing well, and they only hope it will last indefinitely.

A rather nasty accident occurred on Saturday evening, when Lt. Pugh, R.N., accompanied by his fiancée, crashed just outside the eastern boundary of the aerodrome. The cause of the accident is not yet known, but Maj. Cooper, the Air Ministry Inspector of Accidents, is already on the job, so we shall soon be enlightened on some point or other. It is really marvellous how these accident folk can piece together a crashed aircraft and find out exactly what occurred.

The traffic figures for the week were:—Passengers, 1,989; freight, 92 tons.

Night Flying at Heston

ARRANGEMENTS have been made for the resumption of night flying at Heston Airport on Saturday and Sunday evenings during October, beginning on Saturday, October 10, at 6.30 p.m. The latest type of aerodrome floodlight is being installed, the new Neon beacon will be in operation, and the Airport buildings will be illuminated each evening. Capt. E. W. Stewart will make a night parachute descent on Sunday, October 11. Instruction in night flying, including landings, will be obtainable on Air-work machines, and passenger flights will be given. The charge will be the same in each case, viz., £2 2s., and the duration of each lesson or flight will be a quarter of an hour.

All who have flown at night are aware of the peculiar sensation of freedom and exhilaration that is experienced, and, as the aerial view of London by night is extremely beautiful, these passenger flights should prove very popular. A "Puss Moth," with interior heating, will be available. The bar and restaurant will be open, and table d'hôte dinners will also be served each evening.

Admission to the Club House will be on production of membership cards, and although day membership will be given under Rule 12 (e), this is one of the occasions when the advantages of full membership may be expected to appeal to many.

Civil Aviation in Newfoundland

ALTHOUGH a number of aircraft have made Newfoundland the starting point for Transatlantic flights since Harry Hawker's first attempt in 1919, commercial aviation has not—says the Report on the Economic Conditions in Newfoundland, just issued by the Department of Overseas Trade—progressed very far in the Dominion, although since about 1924 until last year an aeroplane was used in conjunction with the sealing fleet, and was of considerable assistance in enabling them to spot seals. In November, 1930, the Newfoundland Airways was formed and a "Gipsy Moth" built in Canada was purchased. The company obtained a small contract to carry mails north in the winter for the Postal Department, and also did some passenger excursion trips over the City of St. John's. Early this year, another concern called The Old Colony Airways, Limited, was formed to develop commercial and pleasure travel, and purchased a Curtiss "Robin" three-passenger aeroplane in Montreal. Owing to the condition of the Island in the summer time, only seaplanes can be used, as, with one exception, there are no proper landing facilities in the Island. In the winter time skis are used instead of pontoons. On several occasions attention has been called to the necessity of undertaking aerial surveys of Labrador and the hinterland of Newfoundland, but the high cost of these enterprises has so far prevented their accomplishment.

MODELS

SOCIETY OF MODEL AERONAUTICAL ENGINEERS (S.M.A.E.)

Speed Competition.—The competition for the S.M.A.E. Cup was held at Danson Park on Saturday and Sunday, October 3 and 4. The course measured 50 yards square, and entrants chose the direction in which they flew their models. On Saturday there was a breeze of not more than 3 m.p.h., falling to nothing. On Sunday conditions were similar, though at one time the breeze freshened for about a quarter of an hour. The winning flight was made by Mr. J. van Hattum's "Ghost" (flown by Mr. J. E. Pelly Fry) on Saturday. It covered the course in a climbing flight at 29 m.p.h. Mr. F. M. Hughes, with his "Power," reached 20 m.p.h. Other entrants were Mr. E. C. Batchelor and Capt. C. E. Bowden. Mr. C. H. Debenham, who flew on Sunday, came in second with nearly 24 m.p.h. Mr. R. N. Bullock covered the course at 34 m.p.h., but unfortunately touched the ground. Another entrant who suffered similarly was Mr. R. A. Yeomans. His speed reached 28 m.p.h. Mr. Hughes equalled, but did not improve, his performance of Saturday, and so took third place. Other entrants on Sunday were Mr. P. G. Cox and Mr. D. Dent. Though the ground was a polo pitch, it was far too rough for these high-speed machines, which had to be over-elevated, as in the case of van Hattum's "Ghost," or be disqualified for touching the ground, as in the case of Bullock's remarkable model. Nothing less than a cricket pitch in perfect condition is good enough for speed machines. Between competition flights model flyers who were not entering held the interest of a large crowd of spectators by the regular performance of their machines; to mention only a few, Mr. E. Catt on Saturday, Mr. Newell, Mr. Willis, and Mr. Batchelor on Sunday. Results: 1st, J. van Hattum, 29.2 m.p.h. (S.M.A.E.); 2nd, C. H. Debenham, 23.8 m.p.h. (T.M.A.C.); 3rd, F. M. Hughes, 20.5 m.p.h. (T.M.A.C.).

The Farrow Shield.—This is competed for annually by clubs affiliated to the S.M.A.E. Each club holds its own trials under the rules and submits the result to the S.M.A.E. The Model Aircraft Club made its bid on Saturday, October 3, at Wimbledon, with an aggregate of 378.2 points. These were the result of the following flights:—Mr. A. T. Willis, 158.8 sec.; Mrs. Willis, 111.2 sec.; and Mr. N. Peters, 108.2 sec.

Freshman's Competition.—This competition will be held at Wimbledon next Saturday, October 10. Rules: (1) Open only to members of the S.M.A.E. and affiliated clubs who joined their respective club or society within the past 12 months. (2) Any type of fuselage machine may compete; the fuselage to comply with the S.M.A.E. formula. (3) All models to be launched by hand. (4) The best duration of three flights to count. Prizes: 1st, £1; 2nd, 10s.; 3rd, 7s. 6d.

Visitors' Open Competition.—This will also be held at Wimbledon next Saturday. Rules: (1) Open only to non-members of the S.M.A.E. and affiliated clubs. No entrance fee. Entries received on the ground at 3 p.m. (2) Any type of machine may compete. (3) All models to be launched by hand. (4) The best duration of three flights to count. Prize: Membership of the S.M.A.E. to December 31, 1932.

S. G. Mullins, hon. secretary, 72, Westminster Avenue, Thornton Heath.

THE MODEL AIRCRAFT CLUB (T.M.A.C.)

4th Wing, T.M.A.C.

September has proved a good month from the weather point of view, nothing worse than strong winds being encountered. Four meetings have been held at Hackney Marsh, and one at Wanstead Flats. Altogether 14 low-wings, 12 high-wings, four biplanes and one tractor spar have been flown. Eight models were shown on the T.M.A.C. stand at the Model Engineering Exhibition. Six new models have successfully flown:—Mr. Gates's "Kitten," Mr. Fialko's "Kinglet," Mr. Vaus's "Stardust," Mr. Beard's "Robin II," Mr. Alavoine's "Kingfisher," and Mr. Bennett's "Balsa" high-wing.

A Grand Rally was held on September 20, many visitors being present with models; 37 models were flown, in-

cluding a number displayed at the M.E. Exhibition, and some cinematograph films were made.

Parachute dropping has been carried out by Messrs. Wood and Knight, and "mimic war" waged with fireworks by Messrs. J. Beard, Collings, Bennett and Jope. Mr. Andrews' "Balsa" high-wing has flown for 102 sec., but the ground record of 112 sec. made by Mr. Wood's "Kingfisher" remains unbeaten.

The Model Aircraft Club display at the recent handicrafts exhibition in connection with Brentford's Scout Week was a great success. Several models were on view representative of the 1st, 2nd and 4th Wings, and visitors displayed a keen interest in them, and also in the constructional work shown by members of the 1st Wing.

Scale models, biplanes and high- and low-wing monoplanes were on view, and members in attendance were able to give a lot of help and information to prospective members, which, together with the requests (80 applications) for particulars and membership forms, indicates that T.M.A.C. activity in and around Brentford will be worth watching in the coming months. Hon. secretary, A. E. Jones, 48, Narcissus Road, West Hampstead, N.W.

14th Wing, Reading.—The Y.M.C.A., Friar Street, have kindly arranged to let members of T.M.A.C. use their workshop. The first meeting will be held on October 14 at 6.30 p.m., and every other Wednesday evening (October 28, etc.); flying meetings at Woodley on the third Saturday in every month. All local inquiries should be sent to W. A. Smallcombe, Esq., B.Sc., Curator, Public Museum and Art Gallery, Reading.

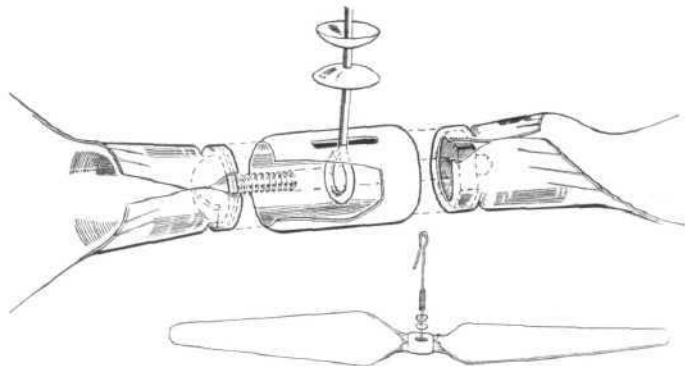
17th Wing, Manchester.—The first quarterly competition for the Leeming Cup was held at the Manchester Airport on October 4, in a strong and gusty wind. Conditions were far from ideal, and durations were not of a high order, the best being 57.6 sec. by Mr. Larmuth and 55.6 sec. by Mr. Doodson. T.M.A.C. rules, under which marks are awarded for design, construction, stability, R.O.G., etc., were adopted, with the addition of a sealed handicap allowance.

As a diversion during the intervals, Master Hodson did some model sky writing with "Famosis Junior." The smoke trail was a great success, but the pilot's spelling was rather faulty!

The results of the competition were:—L. J. Larmuth, "Wizard," 191.3; A. E. Doodson, "Spider," 190.4; W. Thompson, "Geared Crusader," 112; F. J. Sheldrake, "Sky Pilot," 97.4; L. J. Hodson, "Crusader," 92; J. Pearce, "Nimbus," 69.7 marks.

An Adjustable Metal Airscrew for Models

WE show in the accompanying sketch an adjustable metal airscrew which we think will interest aero-modellists. It is the invention of Mr. J. Rogers, an enthusiastic aero-modellist in Australia, who is anxious to dispose of the manufacturing rights, either outright or on a royalty basis.



As will be seen, it is both a simple and practical job, consisting only of two pressed dural blades, with slightly tapered roots, which fit into a cylindrical hub and are secured in same by a bolt and nut passing centrally through all three. It is thus possible to adjust the blades, not only as regards pitch, but also for tractor or pusher, and then lock them in the required position by screwing tight the bolt. Any of our readers who may be interested in the development of this airscrew may obtain further details from Shackleton and Lee Murray, 175, Piccadilly, London, W.1.

THE ROYAL AIR FORCE

London Gazette, September 29, 1931.

General Duties Branch

Air Marshal Sir E. L. Ellington, K.C.B., C.M.G., C.B.E., Principal Air Aide-de-Camp to the King, is appointed a Member of the Air Council as Air Member for Personnel; September 26. Air Vice-Marshal T. I. Webb-Bowen, C.B., C.M.G., relinquishes his appointment as Air Member for Personnel on the Air Council, on appointment as Air Officer Commanding, Wessex Bombing Area, Air Defence of Great Britain; September 26. Pilot Officer on probation W. A. A. Ashcroft is confirmed in rank; September 10. The following Pilot Officers are promoted to rank of Flying Officer: J. Y. Humphreys; September 10. R. T. P. Clarkson, with seniority of June 14; September 11. A. P. Glenny, W. E. L. Lewis, W. A. Richardson; September 14. D. A. Cameron; September 28. Wing Commander E. R. Beauman is restored to full pay from half pay; September 17. Flt.-Lieut. E. H. Richardson is placed on half-pay list, scale B; September 26 to October 15, inclusive. Pilot Officer on probation C. E. L. Tapley resigns his short-service commn.; September 20. Lt. H. W. Metcalfe, R.N., Flying Officer, R.A.F., relinquishes his temp. commn. on return to Naval duty; August 19.

Stores Branch

Flight-Lieut. R. F. Wilson is placed on retired list on account of ill-health; September 23. Flt.-Lieut. J. L. Denman is placed on retired list; September 27.

Medical Branch

I. Bannerman, M.B., Ch.B., is granted a short-service commn. as Flying Officer for three years on active list, with effect from September 14, and with seniority of March 14.

ROYAL AIR FORCE RESERVE

General Duties Branch

The following Pilot Officers on probation are confirmed in rank:—R. F. Egford; July 3; R. M. H. Noble; August 13. The following Flying Officers are transferred from Class A to Class C:—R. Y. Bush; August 26. G. A. Ogg; June 26. R. Matheson; November 1, 1930. The following are transferred from Class AA (ii) to Class C:—Flying Officer G. A. G. Bowden; September 23. Pilot Officer A. C. C. Seligman; September 20. Pilot Officer A. J. Fedden; September 21. The following Flight Lieutenants are transferred from Class C to Class B (Stores Branch); September 7:—E. W. Simpson, E. P. Hardman, D.F.C.

Flying Officer D. B. C. Fulton relinquishes his commn. on completion of service; June 19.

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified:—

General Duties Branch

Air Commodores: N. D. K. MacEwen, C.M.G., D.S.O., to H.Q., R.A.F., Halton, pending taking over command, 23.9.31. C. T. Maclean, D.S.O., M.C., to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 3.9.31.

Wing Commanders: R. H. Peck, O.B.E., to Air Ministry (D.O.I.), for Air Staff duties, 31.8.31. R. M. Field, to Aeroplane and Armament Experimental Estab., Martlesham Heath, to Command, 17.9.31. E. B. Beauman, to No. 1 Air Defence Group H.Q., for Air Staff Duties, 17.9.31. D. Iron, O.B.E., to R.A.F. Depot, Uxbridge, whilst attending the Senior Officers' Tactical Course, 21.9.31.

Squadron Leaders: K. H. Riversdale-Elliott, to Elec. and Wireless School, Cranwell, 15.9.31. A. F. Brooke, to R.A.F. Depot, Uxbridge, 18.9.31. H. S. P. Walmsley, M.C., D.F.C., to H.Q., Coastal Area, 24.9.31. G. M. Bryer, O.B.E., A.F.C., to No. 27 Sqdn., Kohat, India, 14.8.31.

Flight-Lieutenants: V. Rees, to No. 1 Air Defence Group H.Q., 30.8.31. W. J. M. Akerman, to H.Q., R.A.F. Cranwell, 17.9.31. L. R. W. Tillard, to No. 21 Group H.Q., West Drayton, 10.9.31. C. H. Tighe, to R.A.F. Reception Depot, West Drayton, 29.8.31. A. Jerrard, V.C., to No. 1 School of Tech. Training (Apprentices), Halton, 22.9.31. M. C. Pascoe, to R.A.F. Base, Calshot, 19.9.31. F. M. Denny, to No. 24 Sqdn., Northolt, 26.9.31.

Flying Officers: C. Stephenson, to Elect. & Wireless School, Cranwell,

7.9.31. H. H. Chapman, to Elect. and Wireless School, Cranwell, 7.9.31. G. D. Fleming, to No. 207 Sqdn., Bircham Newton, 9.9.31. A. T. C. Hazledine, to R.A.F. Depot, Uxbridge, 15.8.31. W. T. F. Wightman, to R.A.F. Base, Calshot, 21.9.31. R. Jones, to Armament & Gunnery School, Eastchurch, 23.9.31. G. S. King, to No. 4 Flying Training School, Abu Sueir, 7.9.31. C. F. G. Adye, to No. 17 Sqdn., Upavon, 4.9.31.

Pilot Officer B. C. Pocock, to R.A.F. Depot, Uxbridge, 14.9.31.

Stores Branch

Squadron Leader K. D. G. Collier, to R.A.F. Depot, Uxbridge, 9.9.31. Flight Lieutenants: H. Sleight, to Station H.Q., Manston, 14.9.31. D. A. W. Sngden, to R.A.F. Depot, Uxbridge, 24.9.31.

Flying Officer M. E. O'B. Atkinson, to No. 4 Sqdn., S. Farnborough, 18.9.31.

Medical Branch

Flying Officer I. Bannerman, to Medical Training Depot, Halton, on appointment to a short service commn., 14.9.31.

NAVAL APPOINTMENT.

The following appointment has been made by the Admiralty:—LIEUT. (F.O., R.A.F.).—J. H. F. BURROUGHS to *Victory*, and for full flying duties in 444 Flight (Oct. 1).

AIR MINISTRY NOTICES

AIR MINISTRY NOTICE TO AIRMEN. SERIES A

No. 61 of the year 1931. Shoreham Valley (Kent): High-Tension Cables. (870838/28.) (68182/30.)

A line of high-tension cables spanning the Shoreham Valley, Kent, is in course of construction and will be completed within the next month.

The line of cables, which is oriented approximately E.-W., crosses the valley at a point situated about 2½ miles S.W. by S. of Farningham, 2½ miles E. by S. of Chelsfield and 1¼ miles N.N.E. of Shoreham.

The steel lattice masts bearing the cables are 60 ft. in height, with the exception of those on the hill-tops, which are 80 ft. in height. The masts are marked with large red-and-white discs.

It should be particularly noted that two of the routes defined for use between Croydon and Lympne during conditions of bad visibility (see Notice to Airmen, Series A, No. 5 of 1931, and *The Air Pilot*, page 8, section 12), approach within about ½ mile of the point where the cables span the valley. These two routes are the Croydon-Chelsfield-Shoreham-Otford-Wrotham Valley route and the rhumb line course between Chelsfield and Lympne. (September 26, 1931.)

NOTICE TO GROUND ENGINEERS

No. 53 of the year 1931. Bonding and Screening and Earth Systems for W/T Purposes on Aircraft: Air Ministry Requirements. (135515/31.)

The attention of ground engineers licensed in Category A (Electrical Services), who are responsible for signing daily certificates of safety for aircraft in which W/T apparatus is installed, is drawn to the above requirements.

Copies of the Requirements (Air Ministry General Equipment Specification No. D.T.D., G.E. 125, Issue 3) may be obtained direct from H.M. Stationery Office, Adastral House, Kingsway, London, W.C.2, or through any bookseller, price 9d. net, or 10d. post free.

Cancellation.—Notice to Aircraft Owners and Ground Engineers No. 12 of the year 1922 is hereby cancelled.

(September 21, 1931.)

Specialist Torpedo Officers

WITH the development of the torpedo as a weapon of the Royal Air Force, it is necessary to provide for a class of officers who are specialists in this subject, and the Air Council have decided that this class shall be formed as a sub-division of the class of engineer specialists. They will be known as E (T) officers and will be appointed to bases at which torpedo-carrying aircraft are stationed, for combined engineering and torpedo duties. The number of officers trained annually will be two. They will be selected from among officers undergoing the E course during the early part of the second year of that course. During the remainder of that course the selected officers will receive additional instruction in mathematics, metallurgy and explosives, in the relation of these subjects to the torpedo, and as soon as possible after the conclusion of the course they will be posted for a three-months' course in torpedo. Their first appointment on satisfactory com-

pletion of the latter course will normally be to an E (T) post; thereafter they will be available for either E or E (T) posts as well as for non-specialist employment. Officers qualified in engineering and torpedo will be given the symbol E (T) under the same provisions as apply to other specialist officers (K.R. & A.C.I., para. 383). The symbol E (T) will carry the same antedates for promotion to flight-lieutenant and to squadron leader as the symbol E carries under K.R. & A.C.I., para. 353.

R.A.F. Boxing Association.—The R.A.F. Boxing Association is sending a team to tour the Scandinavian countries. The tour has been arranged to give the R.A.F. boxers, who have reached championship class, an opportunity of meeting first-class opponents who in many cases box in a style different from our own. The team leaves King's Cross on the 14th inst., and will box first at Bergen, Norway, on the 17th and 18th. Then it goes to Oslo for a competition on the 24th, 25th and 26th. Matches are also being arranged in Gothenburg and Copenhagen. The following members have been selected at the various weights:—*Heavy*.—P.O. G. E. S. Williams. *Light Heavy*.—F.O. D. L. Maclean. *Middle*.—A.C. T. Storey. *Welter*.—Sergt. W. Harper. *Light*.—Corpl. W. Clarke. *Feather*.—Corpl. E. Leebrooke. *Bantam*.—A.C. H. Graham. *Trainer and Second*.—Mike Honeyman.

IN PARLIAMENT

India and Air Mail Service

SIR S. HOARE, on September 15, in reply to Mr. Mander, said the air-mail service from Karachi to Delhi will be continued until the expiry of the present charter on December 29. As was stated in this House on June 29 last, the preparations that had been made by the Government of India for operating an air-mail service between Karachi and Calcutta, after the end of this year, have been under consideration by the Indian Retrenchment Committee. Until the recommendations of that committee have been received and considered, I cannot usefully make any statement on the subject.

Australia and Air Mail Services

SIR PHILIP SASSOON, on September 16, in reply to Mr. O. Lewis, said a scheme for the establishment of a regular air-mail service to Australia is still under consideration by the Governments concerned, but, since it involves payment of a subsidy, I fear that the financial situation is likely to retard its progress.

Air Signs

MR. DAY asked the Under-Secretary of State for Air what reply has been sent to the civil aviation section of the London Chamber of Commerce with reference to their suggestion for the use of standard air signs being placed on prominent buildings throughout Great Britain?

SIR P. SASSOON: So far as I am aware no official communication from the London Chamber of Commerce of the character stated has been received by the Air Ministry. A memorandum on the subject of a scheme of standard air signs by means of ground markings has, however, been prepared by the Automobile Association and has received the approval of the Air Ministry. I understand that the civil aviation section of the London Chamber of Commerce has issued this memorandum to local authorities and other bodies throughout the country, and it now remains for local authorities to carry it out.

CORRESPONDENCE

The Editor does not hold himself responsible for opinions expressed by correspondents. The names and addresses of the writers, not necessarily for publication, must in all cases accompany letters intended for insertion in these columns.

THE LATE MR. KENNETH WRIGHT

[2771] As one who knew the late Mr. Kenneth Wright—who, with Capt. C. R. McMullin, was killed in a crash in Belgium recently—I think, perhaps, that a few more words about the latter's contributions to aeronautics may be of interest.

K. V. Wright was engaged at Farnborough on full scale aerodynamic research and was largely responsible for the development of the flight methods used for investigating spinning. He was the observer on most of the early spinning work carried out on the Bristol Fighter and the author of several R. & M. on the subject.

He was a keen member of both the London and R.A.E. light aeroplane clubs, and himself owned first a D.H. 53 and then latterly the "Bluebird" in which he lost his life.

Those who knew him will always remember his enthusiasm for flying and his readiness to help all others who were keen.

"Ex R.A.E."

September 30, 1931.

THE FIRST TO GLIDE THE CHANNEL

[2772] In FLIGHT on July 3 last, on page 652, and under the heading of "Correspondence," you published a letter and what was called an affidavit. The letter was signed "p.p. O. D. Philips," and was supposed to have been sent to you for publication by me.

I should be very glad if you will make it quite clear in the minds of your readers that these were neither written, signed or sent to you by me. They were sent to you for publication without my knowledge.

The facts mentioned about the Channel glide are NOT correct, and I do not want my name connected in any way with this venture.

O. D. PHILIPS.

Leatherhead, Surrey,
October 1, 1931.

OUR AIRSHIP POLICY

[2773] In this week's issue of FLIGHT I read that America is proposing to build an even larger airship than the *Akron*. Also, I understand that she is contemplating the purchase of R.100, for experimental purposes.

To digress for a moment. England is passing through the gravest crisis since 1914—not only is the stability of this country threatened, but the structure of the entire British Empire. Even so, can we afford to let R.100 go to America when we might conceivably, and probably, use R.100 in the manner proposed by the U.S.A.? I quite realise that the present moment is not an auspicious one for asking the Government to again consider their recent decision on our airship policy, but the present does not last for ever. It is the future of our country which we must bear in mind, coupled with the depressing fact that we rank FIFTH as regards world air power. When the financial status has improved I sincerely hope that someone will again raise the question of our airship policy and that it will have a favourable reply . . . and that the outcome will be an Airship Experimental and Instruction School, such as suggested by Capt. F. L. M. Boothby, R.N., in a letter to *The Times* of some weeks ago. Surely, when this happy moment arrives, to use a hackneyed quotation, "the bird in the hand is worth two in the bush." In other words, an airship at Cardington is worth two on blue-prints. Beside *Akron* and "Akron 2nd-to-be," it will appear obsolete . . . but it will be a working model, until we build something worthy of the British Empire, fit to be compared with a hundred *Akrons* and *Zeppelins*. It certainly should prove more economical to keep R.100—for the cost in the time wasted, while a new ship is being built, when we could use one we already had, will be great. Also, whilst doing our own airship experiments with R.100, we will be doing invaluable research work, until such time as the Government can afford to build a veritable Hercules among airships. It is easy to see that both the U.S.A. and Germany will one day own fleets of airships. We owe it to our prestige to own at least one of respectable size, surely? Do not let us sink our air future in the present financial gloom. Let us

be prepared for the day when we can seriously start airship research work by having airship pilots, officers, mechanics and crews ready to get on with the job. Strange to say, there are people who do not believe in the value of airships; their trouble is that they can consider airships, and they can consider the Empire, but it is impossible for them to ever consider the two together. WE MUST NOT SELL R.100.

MARY KNIGHTLEY.

Golders Green, N.W.11,
October 2, 1931.

PUBLICATIONS RECEIVED

Report on Civil Aviation and Civil Government Air Operations for the Year 1930. Dominion of Canada, Department of National Defence. F. A. Acland, Ottawa, Canada. Price 25 cents.

Flughafenanlagen. Edited by Max von Beyer-Desimon. Berlin: Verlag von Wilhelm Ernst & Son. Price, RM. 60 and RM. 17.50.

Memorandum on the General Conditions governing Tenders for Government Contracts in Morocco. August, 1931. Department of Overseas Trade, 35, Old Queen Street, London, S.W.1.

Economic Conditions in Roumania. Report by E. J. E. Humphreys, May, 1931. Department of Overseas Trade. London: H.M. Stationery Office, W.C.2. Price 2s. 6d. net.

The Air Pilot. Vol. 1. Great Britain and Ireland. London: H.M. Stationery Office, W.C.2. Price 12s. 6d. net.

An Anemometer for a Study of Wind Gusts. By R. H. Sherlock and M. B. Stout. Engineering Research Bulletin No. 20. Department of Engineering Research, University of Michigan, Ann Arbor, Mich., U.S.A. Price \$1.

Aeronautical Research Committee Reports and Memoranda: No. 1384 (Ae. 509-T. 3077), Tests of Various Lateral Controls fitted to a Siskin Aircraft. By W. G. Jennings. December, 1930. Price 9d. net. No. 1386 (M. 71-A. 77), *The Influence of Titanium Tetrachloride on Cast Aluminium Alloys.* By Dr. W. Rosenhain, J. D. Grogan, and T. H. Schofield. November, 1929. Price 1s. net. No. 1387 (M. 72-A. 81), *Gas Removal and Grain Refinement in Aluminium Alloys.* By Dr. W. Rosenhain, J. D. Grogan, and T. H. Schofield. January, 1930. Price 9d. net. London: H.M. Stationery Office, W.C.2.

AERONAUTICAL PATENT SPECIFICATIONS

(Abbreviations: Cyl. = cylinder; i.c. = internal combustion; m. = motors. The numbers in brackets are those under which the Specification will be printed and abridged, etc.)

APPLIED FOR IN 1930

Published October 8, 1931

- 13,809. T. R. MACMECHEN. Screw-propellers. (356,736.)
21,000. J. H. LARRARD. Aircraft and apparatus for use therein. (365,862.)
31,186. H. JUNKERS. Uniting of structural members. (356,972.)

APPLIED FOR IN 1931

Published October 8, 1931

- 7,384. C. C. VENEZIAN. Device for lifting aeroplanes or placing and securing them on transporting-device. (357,070.)
10,267. J. A. SANDERS and F. L. STOOT. Flying boat. (357,074.)

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